The Journal of the
American Medical Association

VOL. XXVIII. CHICAGO, ILL., APRIL 10, 1897. No. 15.

ADDRESS.

ADDRESS DELIVERED AT THE CLOSING EXERCISES OF THE ARMY MEDICAL SCHOOL, MARCH 12, 1897.

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PRESIDENT OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA. WASHINGTON, D. C.

The selection of a physician in civil life to deliver the address on this occasion gives expression to that comity and fraternal fellowship which makes kindred of us all, and the presence of one whose professional life has been limited exclusively to civil practice adds force to the thought that the great brotherhood of scientific medicine is animated by those qualities of the heart and mind which bring together those engaged in a beneficent pursuit, however widely the incidents and environments of life of the individual members may differ.

You, gentlemen of the graduating class, have won the initial honor of your corps, and with the conclusion of these exercises you will be transferred to the active and practical duties of that department of medicine to which you have voluntarily dedicated your life work. To the doctorate of medicine, with one year of hospital experience and successful examination of the army examining board, you have today added the diploma of a school of military medicine, which attests your fitness to wear the official insignia of a surgeon in the army of your country. All this is in evidence of that high standard of qualification which your corps, under the leadership of its distinguished chief, has established, thereby keeping abreast with, if not leading, the efforts in active operation all along the line, to elevate medical education to the highest standard of a beneficent and life-saving science. The chapeau, shoulder straps and sword symbolize the distinction to which you have today attained, in a scientific corps, but they constitute no part of the equipment of the conscientious physician. They are significant symbols of authority and qualification, all the more honorable because they have been won by your own efforts, not only without aid from a paternal government, but in spite of the obstacles which your superior officers have interposed to an easy and free access to a corps, which, from its organization in 1775, has continuously advanced the requirments of examination, and now selects from those graduates in medicine who may apply only those who have attained that high grade of proficiency which qualifies them to discharge the duties and obligations of the skilled general practitioner of medicine. As yet, and fortunately so, limited specialism has not invaded the medical corps of the army. You can not follow the example of the young graduate in civil life, and go from this hall to your post of duty and swing out the sign of practice limited to a single organ or function of the human body, but must accept the sick call from private and officer alike, and meet every emergency from a gunshot wound to a stumped toe. In brief, you must acquire expert knowledge in every branch of medical science and such manual dexterity as will enable you to fill the measure of responsibility and reach that high goal of scientific attainment which your commissions demand. With increasing and enlarged experience you will come to know your proficiency in some special work, which may lead you along the course of some broad specialism that will hold you in close touch with general medicine and widen the scope of your knowledge in one or more of its branches, and thus fit you for that higher and broader field of specialism to which skilled and expert work in general medicine will lead those seeking preëminence through the only safe channel to success. To the army medical corps will soon fall the task, and I know not to whom it can be so safely trusted, to arrest the progress of decadence of general medicine which threatens its speedy and final subdivision into as many limited and minor specialisms as can find adventurers with brains enough to capture the credulous sick.

Ths subdivision of work and creation of new fields of labor have contributed to the marvelous advance and present high standard of medical science. The annals of medicine furnish nothing comparable to the development which has crowned the researches and discoveries of Simpson in Scotland, Baker Brown in England, Marion Sims in America and Gustave Simon in Germany, who, simultaneously sprang up in distant lands and illuminated the civilized world with achievements that have restored millions of suffering women to health, strength and vigor. They came to this high renown along the beaten track of general medicine, but now that great specialism which they established is threatened with such minor subdivisions that women may enjoy the privilege of dying only through accident or old age. And, may I not suggest that these two causes of death may eventually submit to the expert management of some specialism as yet undiscovered, in which may lurk the hope that will inspire you to the attainment of glory that will endure forever.

You are free from the competition and rivalries of civil life, but not free from the emulation of high aspirations in scientific attainments. Your efforts have thus far been crowned with success, but he among you who will be content to rest at the point of beginning will not only fail, but will recede to the level of low repute and routine fossilism, and perhaps, low enough to accept the mastership of the drummer fiend, who dispenses free of charge, with thanks, from his wallet, a whole salvation army of cure-alls, with literature sufficient to occupy the hours of sleep and then laugh at the credulity of the victim. Liver pills, liver pads and all healing balms and salves are, fortunately, excluded

from the surgeon's requisitions. The common soldiers and enlisted sailors are the only classes of the population of this great country protected by law and regulation, alike from incompetent medical service and a mercenary pharmacy.

Those gifted with sloth and lack of force never leave the starting post, but wait in contemptuous complaint for that success that only comes to those who seek it, and those who seclude themselves in ignorance seek a livelihood through the glamour of pretence and empiricism. It may be that your corps is inadequately compensated for high grade work and low grade work in medicine is dear at any price, but you are free from the penury of emolument, from struggle with the capricious empire of fortune and monotony of scanty subsistence, and thus all the more free to utilize energy, thought and opportunity in the noble activities of the progressive, qualified and conscientious physician.

That you may fully realize the high standing of your corps and the grave responsibilities you have assumed, let me call your attention to a single fact, which has been re-affirmed forty-eight times, and lastly by an act of Congress, approved by the President. A score or more years ago the AMERICAN MEDICAL ASSOCIATION, the most numerous and powerful representative body of medical men in this country, declared by formal act that the force and fiat of law must be invoked to protect the profession of medicine from the ignorant and venal charlatans and mercenary imposters that had sneaked into it through low grade and snide medical colleges, not one of whom had gained admission into this corps. This simple act was the beginning of a new era in medical education in this country, which has continuously grown, acquiring force, power and popularity at every stage of its progress. Beginning with the State of Illinois, forty-eight States and Territories, the last this District by act of Congress, have enacted laws to regulate the practice of medicine, and to prescribe a standard of education, to which every graduate in medicine must attain before engaging in the practice of his profession. Now, mark the significant fact to which I wish to call your attention. In each and every one of these forty-eight laws there is a provision exempting the members of the medical corps of the government service from the examination prescribed for all others, who may seek to engage in the practice of medicine within the limits of its jurisdiction. Forty-eight States and Territories and the Congress of the United States have declared by law that the requirements for admission to these corps have established a standard of education and qualification coequal with the highest demands of the most advanced development. Nor is that all. The same statutory provision necessarily carries with it the obligation to enlarge the requirements, coincident with the expansion of knowledge, that this corps may keep abreast with the progress of scientific medicine, and thus fortify the honor of leadership that has placed medicine in this country in the front rank of applied sciences. No single fact or combination of facts has added such brilliancy to a career that has extended through a century and more of years of honored service. You need not then be surprised at the repetition of the injunction, that the profession must look to your corps for the restoration of general medicine to that high plane of scientific repute that gave to it a Rush, Watson, Bright, Bennett, Trousseau, Niemeyer, Drake, Reynolds, Aitkin, Chapman, Wood, Flint, Bowditch, Loomis and a host of others too numerous to mention, and to your corps a Morgan, Lovell, Lawson, Barnes, and now a Sternberg, whose achievements in general medicine will illumine the pages of scientific medicine through all times and ages yet to come.

As if in fraternal reciprocity this corps has given to civil practice men whose good work has won high distinction in several branches of medicine, to which they have devoted themselves, among whom I may name Gouley, Weir, Smith, Curtis and Wagner of New York City; Allen, Thompson, Norris and Bartholow of Philadelphia; Conner of Cincinnati; Pitcher of Detroit and Howard of London.

The records of the Medical Staff of the Army suggest many lines of special work and study, which offer inviting opportunities for original research and investigation. Your assignments to duty will call you to stations on the Atlantic and Pacific sea coasts, from posts in valleys and along great rivers to others located on high mountain ranges, from tropical to arctic regions, from hospitals in barracks to the rude and improvised structures in the lonesome fastnesses of the frontier, from the comfortable dwelling of the city to active life in camp, always in the line of duty with soldiers in garrison or on the march, perhaps, in war as well as in peace, and always liable to summons from your study to the saddle, from the sick bed of the docile private to the sick chamber of the officer or his family, and perhaps, when opportunity offers, to patients in civil life. These constantly recurring mutations and changing scenes will add such charms to your official life as never come to vary the plodding wage-earning life of the civil practitioner. They give freedom to thought, add pleasing variety to care and enrich the mind with such observation as will widen the scope of intellectual acquirement. You will carry with you from post to post the scalpel, thermometer, microscope, barometer and all other implements necessary to complete the armamentarium of the accomplished surgeon and physician and scientific investigator. The bureau will keep you supplied with the current literature of the world of medicine that may be necessary to keep the student in close touch with new discoveries, improvements in technique, and new and improved applications of old methods, but it can not supply you with time to fritter away in thoughtless ennui and busy idleness. If you are not willing, ready and courageous enough to accept the conditions with all the hardships and grave responsibilities as they are, you had better, right here, plead the baby act and skulk away from an honorable duty.

The nomadic life of the army surgeon offers unusual facilities for the study and solution of many problems as yet undetermined, especially such as relate to the influence of climate, temperature, altitude, topography, meteorologic, electric and barometric conditions and changes, soils, their products and geologic formations, upon classes and entities of disease, and the interchangeable and intercurrent conditions of such natural phenomena upon life, health and disease, in garrison as well as in civil life. Much valuable work along these lines of research has been done by officers of the staff, but much remains to be done before the results can be formulated into law.

"Meteorologic science in this country was conceived and brought forth by the Army Medical Depart-

ment." On the 2nd of May, 1814, Surgeon General Tilton issued an order instituting meteorologic observations at army posts, and in July, 1816, Surgeon Benjamin Waterhouse made the first report, under that order, to the department. During the service of Surgeon General Lovell its usefulness was established and developed, to which Surgeon General Lawson, in 1842, gave impetus and value by supplying the staff with the most improved instruments and prescribing a series of rules for taking the observations, which were subsequently compiled by Surgeon Coolidge and published in 1855. In this valuable contribution to science are set forth "the results of observations of the thermometer, direction and force of winds, clearness of sky and fall of rain and snow, with a special report on the prominent features of general climate in the United States, as exhibited in the distribution of temperature and of rain," for each season of the year, embracing the period from 1842 to 1854 inclusive, which led up to and culminated in the establishment of the Signal Corps of the Army and the Weather Bureau, for which the Government and the people are indebted to the genius and scientific attainments of Surgeon, and later General A. J. Meyer. In 1856 another equally valuable compilation, prepared by Surgeons Wotherspoon and Coolidge, was issued, in which is contained the information "in regard to the location, topography and prevailing diseases of the various posts, the geology and natural history of the neighboring country, with observations on climate, manners and customs of the inhabitants." I have selected these citations from the records of the department that I might entice you into the open fields of investigation, luxuriant with opportunities not less attractive than profitable. Your research work need not, however, be limited to discovery, but may extend into the wider fields of re-examination and verification of accepted results and to the expansion of such knowledge in application and utility. In fact, the whole domain of medicine is open to you, and the hope is cherished that each one of you may determine some fact that will contribute to subjugate medicine to the reign of known laws. Your chances and possibilities are not less than were those of Surgeon Beaumont, whose fame is as fresh today as when he died in 1853. Through eight years of assiduous and patient investigation he established the basis upon which all subsequent experimentation has been conducted which has brought our knowledge of digestion to the present advanced stage of development, but as yet not at rest under the reign of established laws of the animal economy.

It will not, in this connection, be invidious to cite the facts that to Surgeon Smith is due the credit of pointing out the danger of lead pollution of drinking water collected from freshly painted roofs; to Surgeon Howard for suggesting the method of treating penetrating gun shot wounds of the chest and abdomen, which led to the form of primary antiseptic occlusive dressing which has revolutionized the treatment of gunshot wounds; to Surgeon Wright a recovery after a shot perforation of the chest; to Surgeon Otis for the first authoritative announcement of the practicability of enterorraphy in gun shot wounds of the intestines; to Surgeon Sternberg for the discovery of the micrococcus of pneumonia; and to Surgeon Letterman for the plan of "an organization of the Medical Department of an army in the field, that not only contributed in a large degree to the discipline and efficiency of the foremost Army of the Republic, but also robbed war of many of its horrors; who left behind him for the use of those to come, the record of the means by which these noble ends may be again achieved, and who, in rendering this great service to his country, added a brilliant page to the record of the humane character of his profession."

Investigation of all the factors likely to influence the origin, spread and disappearance of diseases in general, and especially of epidemic and endemic diseases, offers to the patient painstaking student an abundant harvest in studies in medical topography, medical geography, and meteorology. We know the occurrence, prevalence and virulence of certain diseases are influenced by seasons, temperature, humidity and barometric conditions, as for instance, the regional prevalence of diphtheria, especially during damp, chilly weather, but our knowledge is insufficient to enable us to determine whether these meteorologic conditions predispose the system to catarrhal affections which favor the invasion of the diphtheria bacillus, or supply the environments necessary to intensify the virulence of the germs. We know also that measles, scarlet fever and diphtheria appear at different times and in different localities in mild, medium and malignant epidemics, showing conclusively that pathogenic effects are not uniform in degree of intensity, and indicating that germs vary at time and places in degree of potency, but we do not know what external influences, if any, determine the degree of virulence. We have been taught and believe that certain infectious diseases find their causes in local conditions and only originate when the local environments are suitable for their development, but we know nothing of the conditions of the soil and water, which in one instance favor and in another inhibit the development of the organisms. Those of you who may be stationed at consumptive health resorts will enjoy the opportunity of contributing to the common fund of knowledge by determining the effects of the air of such places upon the life-history of the tubercle baccillus and upon the streptococcus which goes hand in hand with advanced pulmonary infection, and perhaps settle the question whether the air inhibits the development of these organisms, or whether climatic cures are after all effected by an out-door life and abundance of free air.

In connection with meteorologic studies it would be interesting to know what causes the fits of pain in the hurt and maimed limbs of men, and in tender nerves and rheumatic joints, in connection with storms. Dr. S. Weir Mitchell has made an exhaustive study in the case of Captain Catlin of the army, but could not determine which of the storm-producing factors (lessened pressure, rising temperature greater humidity or winds), caused the neuralgia in this case, or whether some other agency, perhaps electricity or magnetism, was productive of the evil. Professor Palmieri has shown that the atmospheric electricity is always positive during bright and cloudless skies, provided no precipitation has taken place within a radius of ninety kilometers, and that the rays of the hot sun diminish the electric tension. During an actual rain storm the electricity is always positive, but surrounded by a broad zone of negative electricity and the latter is again surrounded with a belt of positive electricity. These observations in connection with Dr. Mitchell's investigations are suggestive, but require further study and research.

So far we know nothing of the significance to the human organism of argon, the newly discovered constituent of the atmosphere, nor do we know anything of the role played by sudden barometric changes in the form of maxima and minima oscillations on the escape of ground air, and the possible liberation of disease germs from the soil.

In that wider field of investigation pertaining to general medicine let me call your attention to the unsettled problems in that prevalent and protean class of disease, comprehended under the term malaria, which the laity thinks it can treat as skilfully as the most learned physician. In 1849, Prof. John K. Mitchell of Philadelphia first announced the doctrine of parasitic origin of malarial and other fevers. In 1852 the late Surgeon-General Barnes, then a young assistant surgeon stationed at Fort Scott, added the weight of his opinion in favor of the parasitic nature of the malarial poison. In 1866 Professor Salisbury of Ohio presented some observations which led him to the conclusion that fevers are caused by the introduction into the system of cells or spores emanating from certain species of algoid plants. In 1879, Klebs and Tommasi-Crudelli described a bacillus found in the soil and water of the Roman Campagna and from various experiments appeared justified in assuming their microbe to be the etiologic factor of malarial fevers. In 1880 Laveran discovered an organism in the blood of a malarial patient in Algiers not found in that of healthy persons, which he called plasmodium and maintained it to be the essential cause of malaria. His conclusions have been confirmed by other investigations and it is now generally admitted that the plasmodium is a parasite belonging to the protozoa, which invades the red corpuscles of the blood, is always present in malarial fevers, never except in rare instances of mixed infection in other diseases, and that the morphologic and biologic peculiarities of the parasites differ in the various types of fever, a strong presumptive evidence of their etiologic relation. The discovery of Laveran supplies the crucial test of diagnosis and offers a scientific explanation of the specific properties of cinchona and its preparations in the treatment of malarial affections. But as yet the natural history of the microbe has not been determined. We know nothing about its externaal habitat and the conditions under which it develops, whether in some plant or animal or elsewhere, how it enters or leaves the body. It has never been found in the air, soil or water of malarial districts or in the secretions and dejecta of the patient and there is no record of its successful cultivation. But the fact that the microbe of malaria has not been discovered outside of the body is not proof that it does not exist, for we are dealing with an extremely minute parasite which may be found like other parasites in different stages of development. It has always been held that a certain degree of heat, moisture and vegetable decomposition are necessary for the development of malaria, and that drainage, removal of forests and cultivation of fields have resulted in the disappearance of the disease. While this is in the main true, malaria has disappeared at times regardless of drainage. It is equally difficult to account for the fact that from many localities where the disease formerly prevailed extensively it gradually disappeared, and in later years returned. Again, we are without satisfactory explanation of the pandemics of malaria of which Professor Hirsh describes a number, the latest appearing between 1866–1872, in which the disease spread not only over a great part of Europe but visited simultaneously many parts of India and North America and showed itself, and in a severe form, for the first time in the Island of Mauritius. All this is especially remarkable because not in a single instance has the disease on a large scale been shown by observation to have spread according to the direction of the wind.

What the older writers called the malarial diathesis, and the epidemic constitution of the atmosphere, may play some role in the spread of the disease, but reason and observed facts suggest that the organism is developed in a specific soil, and that the quality has more to do with it, than the quantity. As for instance in the vicinity of Rome, we are told that malaria decreases as soon as the limits of animal soil polution are reached. Extensive marshes, rank with vegetation, in favorable latitudes where we expect to find the poison are often devoid, while infection has taken place in the deserts of Africa, where the surface was covered with sand with a substratum of wet clay. Malarial soils have been created by temporary dams or irrigation. Some observers refer to striking examples of the influence of house-plants in the production of malarial intoxication. Salisbury's experiments with a cake of malarial soil carried to a house five miles from the locality and infecting two young men is very suggestive. Ship malaria may be due to a balast of malarial soil. It is just in such remarkable instances where the physician should invoke the aid of the bacteriologist, for it is self-evident that an examination of suspected flower pot and plants may yield satisfactory results on account of the limited fields.

If the organism develops in the soil, why should it not find its way into the drinking water, or into the atmosphere by the ascending currents? Is night air bad because the ascending currents after sundown contain ground air? The influence of ground air is illustrated by frequent infection of persons sleeping on the ground or first stories, also after excavations, as in the construction of railroads, streets, sewers and buildings. I hope you may find time and opportunity to clear up the nature of "mountain fever;" a search for the plasmodium together with Widal's serum diagnosis, ought to settle the question, whether it is a malarial or typhoid fever or the result of a mixed infection.

If time permitted I might review other classes of disease, in that I might expand and multiply your opportunities for research work in clinical observation, verification and experimentation, but enough I hope has been said to interest you in some one of the multiform, composite and mooted subjects, in the final settlement of which you may find that distinction which comes only through diligence and expert work.

And now let me add the testimony of Professor Virchow, to whom scientific medicine owes as much if not more than to any man living. In his statement of the status of the doctrine of infectious diseases he referred to the progress of medical science in the United States, with special reference to the labors of the Army Medical Department and said:

"In the Crimean war the French army lost one man out of every three of the whole army, and it is estimated that of the 95,615 lives lost only 10,240 fell before the foe. About as many died of wounds in the hospitals and the remainder, more than 75,000 men were victims to epidemic diseases. It is calculated that in the American war of rebellion 97,000 men fell

in battle and 184,000 died of diseases and epidemics. But it must here be acknowledged that it was not the necessity alone that revealed the evil and brought the help. The French in the Crimea learned from their experience little or nothing and the Americans in their civil war, so much, that from that time dates a new era in military science. These results were brought about not by the magnitude of the need which the Americans had to suffer, for this was not greater than experienced by the French in the Crimea, but rather by the critical and truly scientific spirit, the open minds, the healthy and practical understanding which in America gradually permeated all departments of the army organization, and which, under the wonderful coöperation of an entire people, reached the highest point in humane efforts ever attained in a great war. Whoever takes up and reads the extensive publications of the American Medical Staff will be constantly astonished at the wealth of the experience therein found. The greatest exactness in detail, careful statistics even about the smallest matters, and a scholarly statement embracing all sides of medical experience, are here united to preserve and to transmit to contemporaries and posterity, the knowledge purchased at so vast an expense."[1]

You may, but those who have come to witness these ceremonies and to offer you their congratulations may not know that in this hall is the largest and most valuable medical library in the world, collected, classified and arranged at comparatively small cost to the Government by Surgeon John S. Billings. Upon its shelves are all the original publications of the bureau, among which are the volumes of the medical and surgical history of the civil war with the issue of which began the new era in military medicine. On other shelves are the seventeen ponderous volumes of the Index Catalogue, the conception and work of Surgeon Billings, which has contributed more to the progress of medicine and advancement of the higher standard of medical education than any single publication by any nation on the face of the globe. To these must be added the nineteen volumes of the Index Medicus, "a monthly classified record of the current medical literature of the world," edited by Surgeon Billings and Dr. Robert Fletcher, which, with the Index Catalogue offers to all students the opportunity of exhaustive examination of every subject in the whole range of medical science. In another hall is an anatomic and pathologic museum unsurpassed in the variety and value of the collection, which owes its inception to Surgeon-General Hammond, its establishment upon a permanent basis to Surgeon-General Barnes, and its scientific value and importance to Surgeons J. H. Brinton, J. J. Woodward and George A. Otis. In an adjoining room is located the biological laboratory, under the immediate supervision of Surgeon Walter Reed, which, like similar laboratories in the Bureaus of Animal Industry and Marine Hospital Service, is continuously expanding our knowledge of medical and biologic sciences. All these foundations are housed in a building erected by a munificent government to signalize and emphasize the eminent distinction to which this corps has attained in military as in general medicine. These endowments, with their prospective expansion, will in the future, as in the past, give impetus to new thought and to such new and enlarged conceptions of scientific research as may, eventually, under the fostering care of a generous Government, advance the science of medicine and biology beyond the most hopeful progress of any other civilized nation.

Many years ago the late Surgeon-General Barnes, in a conversation with me, made the statement that it was his policy to encourage the officers of the staff to affiliate with their confreres in civil life, in that the attrition and conflict of thought and experience would be active and effective instrumentalities in correcting mistake, fallacy, misconception and misapplication. In this policy he exhibited that remarkable sagacity which characterized his executive capacity. In the years since that interview, I have had, almost daily, opportunity to witness the good influence and now place upon record the testimony of one in civil life, in evidence of the wisdom of his policy. There is no reason for any division, by the sharp line of official and civil duty, of the members of a noble profession founded upon the broad principles of Christian philanthropy, and it is a pleasing reminiscence of my professional life, that I have in some measure fostered the common fellowship, that was established between the corps of the government medical services and the civil practitioners of this city in the organization, in 1819, of the Medical Society of the District of Columbia, which has continued during the past seventy-eight years and is now more closely fraternal than at any previous period. During the early years of the history of this city the influx of charlatans and pretenders was so extraordinary, and such injuries and wrongs were perpetrated by them upon the citizens, that the qualified physicians assembled to consider and discuss methods of procedure and organization by which the community could be protected from such wrongs and informed of the qualification of those fitted to practice the healing art, which culminated in a petition to Congress, signed by twenty-one physicians, including two surgeons in the army and one in the navy, for the charter which was granted and approved by President Monroe on Feb. 16, 1819. In 1820, Edmund Cutbush of the navy, and in 1822, Joseph Lovell, Surgeon-General of the army, were admitted to membership, and throughout the entire period of the life-history of that society there has been a continuous succession of membership of army and navy surgeons, now including the members of the faculty of this school. During the succeeding decade there came a class of men possessing the doctorate of medicine, but not less unscrupulous than the charlatans who had been transmigrated to some less fortunate community by the act of Congress Feb. 16, 1819, which made it necessary to segregate the men of low and doubtful repute from those who were animated by the highest impulses of honor, dignity and philanthropy. Surgeon-General Lovell and Surgeon Thomas Henderson were the intrepid leaders in the movement which culminated in 1833, in organization of the medical association, which continues in operation. The interesting and pertinent facts are, that army and navy surgeons were actively instrumental in the estbalishment of the first scientific medical society in this district, which has now passed its seventy-eighth year of continuous existence and is today one of the most active bodies of the kind in this country, and that the surgeon-general of the army was the founder of a medical association, now in its sixty-fourth year of continuous life, which was formed to unite the profession into one concrete body, upon the

[1] Translated by Dr. G. M. Kober and published in Pacific Medical and Surgical Journal, November, 1874.

basis of high professional character and decorum. The attempted but unsuccessful revolt of the community against this organization was a most remarkable occurrence. It was a strange freak of public opinion that assembled citizens in mass meetings to organize concerted action to frustrate the united efforts of physicians to enforce such rules of conduct as would secure to the community the full fruition of the highest qualifications of the medical fraternity and harmonious coöperation among themselves in a common pursuit. And, it was even more strange that the same citizens should in mass meeting, in angry misapprehension, have resolved to sever the close relation of the family physician, and, to accomplish this purpose, have invited from a distance an influx of strangers to supply the places and accept the confidences of the evicted family physicians. To the sturdy independence and courage of Lovell, Henderson and their associates the civil practitioners were indebted for the failure of this unseemly outbreak. Such historical events ought to guarantee permanency of good feeling and harmonious coöperation in all the relations of professional life and association between the officers of these corps on duty in this district and the civil faculty, with so many of whom they may be brought into the closest professional intercourse, as coequals in all that pertains to that high esprit de corps which should unite us in the common fellowship of a profession, animated by the noble aspirations to alleviate suffering, prolong and save life and to broaden the scope of our usefulness in the interest of and for the good of mankind.

Apart from considerations of a high esprit de corps, a high standard of education, high scientific attainments and uninterrupted and continuous leadership in the advancement of a scientific and philanthropic profession, there are other incidents in the history of the Army Medical Department, which add dignity to honor, and emblazon its escutcheon with the armorial bearings of Revolutionary Sires. In response to that spontaneous outburst of patriotism, following the battle of Lexington, which called "the farmer from his plough, the mechanic from his shop, and the clergyman from his pulpit," physicians in numbers, hastened with their saddle bags from their native towns, to the rescue of the sick and wounded, and to assist the cause of liberty.

On May 8, 1775, the second Provincial Congress of Massachussetts Bay ordered:

"That the President *pro tempore*, Doctor Church, Doctor Taylor, Doctor Holten and Doctor Dunsmore, be a committee to examine such persons as are, or may be recommended for surgeons of the army now forming in this colony."

"*Resolved*, That the persons recommended by the commanding officers of the several regiments, be appointed surgeons in their respective regiments, provided, they appear to be duly qualified on examination."

At the first examination under that act six out of sixteen applicants were "found disqualified." This was the beginning of the Army Medical Department, which has continued without a break in its history, and is now older than the Constitution, older than the United States of America, older than the office of President, older than the highest tribunal of justice, aye, older than the Declaration of Independence. Born in patriotism, baptized in battle, grown to manhood in the struggle and conflict for independence, it has reached maturity through a century and more of years of service in peace and in war. Who, then, more entitled to wear the armorial honors of Revolutionary Sires?

ORIGINAL ARTICLES.

A GLIMPSE OF THE HISTORY OF MILITARY SURGERY.

Read at the meeting of the Association of Military Surgeons of Illinois, Springfield, Ill., March 19, 1897.

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CHICAGO.

At the meeting of this Society in Chicago last fall; one of these pleasant reunions which I had the honor to attend, it was suggested that a paper on the history of military surgery would be of interest, and I was asked by your distinguished President if I would write a brief essay on this topic. Fortunately for the Society, he used the word brief, and all of us know what it is to obey a command. Another fortunate thing in the matter was, that it would have been impossible I think to have made it otherwise, in view of the smallness of the material at hand. If, however, the idea had been to write upon the many virtues and important position occupied by departed worthies who had filled places in military surgery, the task would have been easy. I confess my astonishment at the paucity of medical literature on this special subject. If we exclude the Homeric writings we shall find nothing, or next to nothing, about military surgeons in ancient medical literature. Indeed, we must come to the conclusion that in the early days of the human race, when wars were more common than now, and conflicts were hand to hand, the surgeon was viewed as a species of personal property, to be owned by king, conquerer, or great general, and his service utilized as the potentate saw fit.

In Malcolm's History of Persia, we are told that Taxiles endeavored to conciliate the Greek envoy whom Alexander sent to herald his approach. He said: "I shall send to the great conquerer, your master, my beautiful daughter, a goblet made of ruby that replenishes itself with liquid, a philosopher of great knowledge of the sciences, and a physician who has such skill that he can restore the dead." In other words, this ancient exponent of an effete monarchy gave away the young woman, a ruby goblet, a philosopher and a physician with the same ease that he would have given away a pet camel, a jack-knife, or any other article that might chance to have entered his mind at the moment. Nevertheless, the fact remains that physicians were held in great esteem, as Homeric writings abundantly prove, and as a matter of fact, it seems that almost all of the ancient worthies who have contributed much to the literature of our profession, at some time or other were compelled to serve in the army either willingly or unwillingly; but the civil surgeon is better situated for progress in the science of the art, and it must be confessed has contributed much more to the art of surgery in general. If we examine the progress of the art of surgery and especially as applied to the preservation of life of troops and the conservation of the wounded, we shall find that each war in its turn, down to modern times, has given better results. Our own Civil War was an immense improvement in these respects from the war

in the Crimea, although there skilled surgeons from every hospital in Europe were prepared to render service to the armies in the field. The Franco-Prussian War was a still greater advance, because the beginning of recent antiseptic methods were apparent; but the Russo-Turkish War of 1878, especially in the campaigns of Bosnia and Herzegovina, gave marvelous results. It is this difference in methods of treatment between those of the early periods of the present century and that which we practice today, that makes a study of the ancient history of military surgery rather one of curiosity and of polite recreation than of positive advantage. Even the character of arms in general and of projectiles has entirely changed. A constant change has gone on since the days of Paré, Wiseman, Joubert, Braunschweig, Felix Würtz, Gersdorf, Larrey and Percy, Heister, Guthrie and McLeod. But the greatest triumphs of the military surgeon have been in the field of preventive medicine, and in that field the medical men of our own Civil War must ever stand preëminent as pathfinders.

LITERATURE BY MILITARY SURGEONS.

Paulus Ægineta, 625–690, one of the earliest writers on military surgery, speaks of the method of cure of wounds caused by the weapons of his period, such as sling stones, darts, arrow heads, etc. He was the first to recommend that the arrow head be pushed through a wound or put a tube over the barbed arrow. In the time of Justinian, physicians of the war were mentioned whose duty it was to examine recruits and soldiers as to their capacity or disability. At the time of the Emperor Maurice, 582–602, every division of two hundred to four hundred cavalry had eight or ten stout fellows detailed as attendants to furnish water, to collect the wounded, etc. In 1042 it is said that the Norwegian King, Magnus, after a battle, selected twelve of his warriors, who had the softest hands, to care for the wounded and dress their hurts. That the stretcher has been used for an early period we may learn from Nibelungenlied.

"Of wounded to the death, know thou our princes high,
Full eighty stretchers, red with blood, are in our land.
—He begged for best of care,
Rest suited for their wounds he sought, and gentle heed."

That the Romans had field hospitals there is probably little doubt, but in the campaigns of Greece and in Asia the old temples which had been formerly used as hospitals were utilized just as they were in the later period.

In Germany in 1570, according to Baas, there was one feldscherer to every two hundred calvary, and each feldscherer had one assistant.

Alexander Benedetti, of Legnago in Lombardy, in 1490 removed to Greece, where he practiced medicine in the isle of Crete, in Canea, which then belonged to the Venetians. In 1493 he returned to Venice and was appointed to a Chair at Padua, but in 1495 he served in the capacity of a military surgeon in the army which the Venetians sent against Charles VIII., and which was defeated before Fornova. He died about 1525. He wrote on anatomy "in which," says Sprengel, "there is not a single new discovery, but there is enough good physiology written in the spirit of the times. His great work is crowded with rare and remarkable observations." (Alexander Benedetti, Opera in 4to, Bas., 1539). His contemporaries compared him with Celsus, "but a more exact parallel," says Sprengel, "would be Alex. de Thralles."

In 1514–1564 we have André Vesalius, who was born at Brussels. He made his studies first under Lavigne, and afterward under Sylvius, where the ardor with which he applied himself to dissections was said to be the cause of shortening his life. He served as military surgeon in the armies of the Emperor, but later he went to Italy, where in Padua he gave his first course in anatomy. He attracted to himself an enormous number of students. He went also to Bologna and to Pisa. After the publication of his great work on anatomy, Charles V. made him come to his court, and he became physician to Philip II., son of Charles V., and among other remarkable cures he cured Don Carlos from a very dangerous wound of the head. In the last year of his life he visited Palestine, but on his return a tempest arose and the vessel was wrecked on the Island of Zante, where he perished.

"The principal merit of Vesalius," says Sprengel, "was incontestably his judicious critique of the assertions of Galen, and in which he has been sometimes accused of having altered the text, but it has been proven conclusively that these alterations were in the shape of necessary interpolations." There is one thing to be said about Vesalius' "Anatomy," that is, he had the aid of the celebrated artist, Titian, and Jean d'Calcar in the preparation of the anatomic plates. Furthermore, it is said, these are the first exact anatomic plates over made; for those of Leonardo da Vinci, made for Mark Anthony del Torree, were scattered at his death, and the plates which the immortal Michael Angelo engraved have unfortunately been lost.

There is one point about the writings of Vesalius that must command attention, and that is, that following his master Sylvius, all of his dissections were made on the human body, whereas those of Galen were not, although it is now known that Galen did make dissections of the human body, although most of them were made on animals.

Paracelsus, the greatest medical mystery of the sixteenth century, laid the foundation of his fame as a military surgeon in the low countries, the Roman States, the Kingdom of Naples, and against the Venetians, the Danes and Dutch. He, in 1526, having been called to the University of Bâle to the Chair of Physics and Surgery, wrote in mixed Latin and German and said that the writings of Hippocrates were true enough for Greece, but were of no use in Germany. He said that every hair on his head was more learned than all the Arabs and Greeks united, and he publicly burned the books of Hippocrates and Galen that he might show his contempt for them.

Ambroise Paré, the celebrated French surgeon, followed the French army in all its campaigns from 1536 to the battle of Moncontour in 1569. He was a barber by trade, and the son of a barber. His life and the incidents of his famous career have been so frequently told that I may be pardoned for omitting further reference to him here. He is commonly spoken of as the father of French surgery. This is incorrect, as that title is due to Henri d'Mondeville, 1320, and if not to him, at least to Guy de Chauliac, 1360. But d'Mondeville is clearly enough the father of French military surgery, as de Chauliac never served in a military capacity, being a churchman at Montpellier.

Paré's first work was on the true method of treating wounds, etc., in which the ligature was brought out; but as it is now known, this had been previously recommended by d'Mondeville, by Theodoric and Galen.

But Paré was a voluminous writer, a forceful man, and as Napolean said of Larrey, "The most virtuous man I ever knew," and popular among the troops to an extent that no modern surgeon can ever hope to aspire.

In the fifteenth century in England, as a curious reminder of the salary of army surgeons of the period, we find that Henry V. in 1415 engaged Nicholas Colnet as field surgeon, who, it is said, "must carry three mounted archers and accompany the King wherever he went. In return he was to receive yearly forty merks, at the rate of ten merks per quarter. He had also twelve pennies a day as subsistence money, and each archer twenty merks a year and six pennies a day subsistence. Morstedt, who was Chief Army Surgeon, had served at Agincourt, was engaged with fifteen men, three archers, and the remaining twelve surgeons."

The next English military surgeon is Thomas Gale, who was born in 1507, served in the army of Henry VIII. and afterward in that of King Philip at St. Quintin in 1557. He published a treatise on gunshot wounds.

A curious incident is cited by Ballingall of the first examining board. He quotes Thomas Gale, who was attached to the English Army from the time of Henry VIII.

"I remember," he wrote, "when I was in the wars at Muttrel, in the time of that most famous prince, King Henry VIII., there was a great rabblement there that took upon them to be surgeons, some were sowgelders, with tinkers and cobblers. This noble sect did such great cures that they got themselves a perpetual name, for, like as Thessalus' sect were called Thessalians, so was this rabblement for their notorious cures called dog leeches, for, in two dressings, they did commonly make their cures whole and sound forever, so that they neither felt heat, nor cold, nor no manner of pain after. But when the Duke of Norfolk, who was then the General, understood how the people did die, and that of small wounds, he sent for me and certain other surgeons, commanding us to make search how these men came to their death; whether it were by the greviousness of their wounds, or by the lack of knowledge of their surgeons. And we, according to our commandment, made search through all the camp and found many of the same good fellows which took upon them the name of surgeons. Not only the names, but the wages also. We, asking of them whether they were surgeons or no, they said they were. We demanded with whom they were brought up, and they, with shameless face, would answer, either with one cunning man or another who was dead. Then we demanded of them what chirurgery stuff they had to cure men withal; and they would show us a pot or a box, which they had in a budget, wherein was such trumpery as they did use to grease horses' heels, and laid upon scabbed horses' backs; and others that were tinkers and cobblers; they used shoemaker's wax with the rust of old pans, and made there withal a noble salve, as they did term it. But, in the end, this worthy rabblement was committed to the Marshalsea, and threatened by the Duke's grace to be hanged for their worthy deeds, except they would declare the truth what they were, and of what occupation; and in the end they did confess, as I have declared to you before."

William Clowes was a navy surgeon, 1570, who afterward in 1585 went to care for the wounded in the low countries.

Among the early English surgeons Alexander Munro, who served with McKay's Scottish Regiment, 1626, and who was doubtless much more accustomed to the claymore than he was to the roar of the artillery, gives an account of the impression upon the early armies of the invention of artillery.

"It is thought the invention of cannon was first found at Nurenberg, for the ruin of man; being at first for a long time used for battering down of walls and cities, and for counter batteries, till at last they were used in the field to break the squadrons and battailes of horse and foot; some carrying pieces called spingards of four foote and a halfe long, that shot many bullets at once no greater than walnuts; and how soon the trumpets did sounde, the enemy were thundered on, first with these as with shours of hailstones, so that the enemies were cruelly affrighted with them, men of valour being suddenly taken away, who before were wont to fight valiantly and long with the sword and lance, more for the honour of victory than for any desire of shedding blood; but now men martyrized and cut down at more than half a mile of distance, by those furious and thundering engines of great cannon, that sometimes shoot fiery bullets able to burne whole cities, castles, houses or bridges, where they chance to fall, and if they happen to light within walles or amongst a brigadd of foot or horse, as they did at Leipsigh, on the grave of Von Torme, his brigadd, they spoil a number at once, as doubtless the devilish invention did within Walenstine."

It will be recalled that many years were spent by surgeons in the discussions of the alleged poisonous character of the balls used as projectiles. Curiously enough, the idea of the idiopathic poisonous nature of bullet wounds was revived in the Slattery case tried in 1892, in which the acquittal of the accused policemen turned partly upon the issue whether bullet wounds were or were not necessarily septic. The acquittal decided they were not.

The seventeenth century was prolific in the annals of military surgery, especially in English. Woodall's "Surgeon's Mate," written about 1626, and the "Chirurgical Treatise" of Richard Wiseman appeared in 1676.

In the eighteenth century we have John Hunter, who was staff surgeon and general surgeon; Surgeon-General John Pringle, whose writings were far ahead of the time in regard to hospitalism, and Inspector-General Robert Jackson, and in America James Thatcher.

Jackson, who was the Inspector-General of British Army Hospitals, commenced his medical life as surgeon to a Greenland whaler, but he finally entered the British service and served through our Revolutionary War. Many traits of Jackson deserve to be perpetuated and held in remembrance. Although we are not accustomed to speak well of our enemies, yet that chivalrous spirit which should imbue all military men leads us to recognize remarkable bravery wherever found.

At the battle of Cowpens, Jackson served as Assistant Surgeon to the Seventy-first Regiment in Tarleton's Brigade, and during the heat of action Tarleton's horse was shot, and Dr. Jackson, being well mounted, rode to his side and dismounting tendered him his horse, which was accepted, and Tarleton immediately rode off, although the British were in full retreat and hotly pressed by the Americans. Seeing that many wounded British were in our hands Dr. Jackson fas-

tened a white handkerchief to a stick and as a flag of truce walked directly to the American front, where he was conducted to the rear as a prisoner, and immediately offered his services to attend the wounded. He occupied himself that night in caring for them and in default of dressings took off his own shirt and tore it up for bandages. The next morning he was sent for and examined by General Washington, to whom he tendered his professional assistance for the wounded Americans also, an offer which was readily and courteously accepted, and as soon as the British wounded could be exchanged, Washington sent Dr. Jackson with them without requiring his parole or demanding an exchange.

The biographer of Jackson, himself a Briton, relates this story, and adds that "he would have taken great pleasure to have been able for the honor of human nature to have entered upon the record a demonstration of General Tarleton's grateful recollection of the service done him by Dr. Jackson in the hour of his rout and danger. But Lieut.-Colonel Tarleton in his history remained entirely silent; although to this remarkable instance of duty and devotion perhaps he owed his life, as he certainly did his liberty and capability of usefulness." Later Dr. Jackson served under Lord Cornwallis, and after one of the battles, when the British troops were retreating, the building into which the sick and wounded had been carried was being riddled by the shot of the Americans, visiting became so dangerous that the surgeons proposed casting lots to determine which of them should go and attend the wounded soldiers. Jackson was present and when the proposal in turn reached him to cast lots, he said: "No, no, I will go and attend them." And he did.

Jackson's work on the "Formation, Discipline and Economy of Armies," the last edition of which was published in 1845, is today a book of great interest and instruction.

Dominick Anel (born 1679, died 1750), the French military surgeon, was the first to write on the cure of lachrymal fistula by the aid of sounds and injections. It is curious, in looking up the history of these smaller operations, to notice the enthusiasm with which military surgeons were engaged in treatment of affections which might be supposed to belong exclusively to private life.

The Dutch army surgeon, von der Haar, perfected the method of hare-lip operation, and recommended a preliminary bandage by which the parts were brought strongly together.

In abdominal surgery the military surgeon has long been in advance. I need not refer to that noble collection of authorities, gathered by your distinguished president, when he wrote his classical article on "Circular Enterorrhaphy," but can only refer you to Wiseman, 1676, and others of that date and of the succeeding century as to the treatment of wounds of the intestine.

Of hernial operations, one of the most remarkable was performed by Mennel, a regimental surgeon of Naumbourg, who, about the year 1753, in a case of gangrenous hernia, removed the epiploön, the testicle, the cord, and a considerable portion of the ileum. Unfortunately, all of the military surgeons of that day were not thus successful. "The operations of Michaelis," says Sprengel, "were unfortunate operations, and, for the most part, executed with much maladroitness."

Claude Joseph Gentil, Chief Surgeon of the Armies of France, paid particular attention to operations for cataract and the prevention of staphyloma in 1752. The operation for cataract, now a prominent subject, occupied the attention of surgeons, and was a frequent topic for discussion a great many years. Among others Olof Acrel, who was professor at Stockholm and Chief Surgeon to the Swedish Army in 1766, wrote a long criticism on the best method of extraction of the crystalline lens.

John Christian Tagden was called the Machaon of the Prussian Army. He wrote a work on surgery, in 1795, which is a veritable storehouse of medical and surgical information.

Chistian Louis Mursinna in 1796 wrote a work published at Berlin on the observations which he had made in the campaigns of the Prussian Army, with especial reference to wounds of the head.

J. C. Jager in the same year wrote an essay on military medicine, published at Frankfurt-on-Main.

Within the limits of this paper it is hardly possible to speak of the great work of Guthrie, Hunter and McLeod on the Crimean War, and in naval affairs of Saurel and Sir Gilbert Blane, whose "Medicina Nautica" was an epoch-making book.

In the nineteenth century a course on military surgery was established at Edinburgh by Wm. Balling-all, who had seen thirty years service. It must be admitted that a course on military surgery had been outlined by John Bell in a memoir in January of 1798, addressed to Earl Spencer, but it was not adopted by the British Government. One is impressed with the advanced views entertained by Bell at the close of the eighteenth century. They are as follows:

1. The Professor must teach the essentials of anatomy, surgery, dissection, etc.

2. Gunshot wounds.

3. Military medicine, fevers, fluxes, spasms, infectious diseases and duties of camp and hospital; scurvy, ulcers and disorders frequent in ships of war.

4. Medical geography, climates, seasons, coasts of various countries; manner of conducting soldiers on a foreign expedition; the general care of their health; the choice of encampment; forming of hospitals on shore; how to convert churches, garrisons, public buildings into occasional hospitals; how to attend an army in the field; how to lay the wounded in besieged towns; how to carry them off the field in a retreating army.

5. Military economics, diet, exercise, clothing, general medicine, and all methods of preventing disease.

For a quarter of a century Legouest remained the standard French text-book on military surgery, but it is now superseded by the latest work on military surgery, by Chauvel and Nimier, who, in speaking of the progressive improvement, say, "That frightful hecatomb, the Crimean War, has come to demonstrate the sad results of a vicious organization, more murderous than the projectiles of the enemy; the epidemics due to a neglect of the most elementary rules of hygiene, thinned the ranks of the effectives. The slightest wound became a cause of death, and in the crowded hospitals and the overloaded ambulances the surgeon sought in vain against infection which decimated them nearly to the close of a day where, worn with the enervating struggle and superhuman work he fell to rise no more, on this rotten straw, the only bed which was furnished for his needs. This was the *corps de santé militaire:* Invalids, physicians and pharmacists, who paid the heaviest tribute to the

dead. However, France, ignorant of these disasters and of their cause, wept silently for its children, and without asking if their loss could have been prevented, or if all had been done to save them.

"Michel Levy and Bégin raised in vain their voices. The cannon which thundered to celebrate the victory and the peace drowned the appeal of the physician as it concealed the cries of the dying and the tears of the mothers. The War of Italy came and we have seen reproduced the same disorder and the same results. Here were physicians without material, and material without physicians; warehouses stored with linen, charpie, surgical cases, etc., during which much of the time in the ambulances and hospitals, over the battlefield, there were a hundred physicians to give assurance of service for an army of twenty thousand men. In a word, all the evil effects which were seen in Crimea and Constantinople were here observed on French frontiers whilst still in a friendly country. The emancipation of the medical corps was not yet complete, but the example of the United States by its incontestable statistics in favor of the value of independence of the medical corps was finally adopted by a decree issued in 1882. Today in the French military service, as in other armies of the civilized world, the military surgeon is the veritable chief of his own service, and with this authority has been vested in him the responsibility."

The English Army has fared much better. It was early made apparent in the history of that enlightened nation, that not only were competent physicians needed for the military service, but that they must have autonomy and responsibility for their portion of the work.

In Germany military surgery has had the same evolution marked in other countries. Fischer of Hanover, whose historic articles are now appearing in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, notes with surprise that the great Frederick wrote exhaustively on the affairs of the sutler, but very briefly on transportation of wounded and immediate assistance on the field.

"Frederick occasionally visited the hospitals, gave money to the sick soldiers, investigated the medicine vials and showed special interest in certain wounded soldiers." But Frederick in 1781 put captains in command of the doctors and stewards, "so that arms and legs would not be amputated wholesale, and that in general no amputations should be undertaken until mortification had set in, for which the captains must also be responsible." If the surgeon did not do his duty he was to be "put in chains."

This regulation naturally brought confusion and mismanagement, and Zimmermann was finally called to rectify it.

Cothenius and Schmucker, Bilguer and Theden served with distinction in the seven years' war. Schmucker was badly wounded at the battle of Prague, but nevertheless kept on duty. He was very much annoyed by the lack of transportation; he obtained permission to have a regiment of dragoons dismounted, and "in half an hour all the wounded were on horses and the dragoons marching at their side." (Fischer.)

The very interesting chapter of Fischer's book, I must refer you to as containing in brief space the condensed history of German military surgery. I can not take more of your time now on this branch of the subject, but I wish to express my unbounded admiration for the system now carried out by that able and distinguished and courteous officer, General Von Coler, at once an ornament to his profession and to the military service. Through his courtesy, when in attendance at the Medical Congress in Berlin in 1890, I was afforded by him abundant opportunity to study the present German method.

The German and Austrian armies have in our day shown great appreciation of their medical corps. In Germany Volkmann, Gürlt, Von Esmarch, Bardeleben, Von Bergmann and Von Coler, and in Austria Neidorfer and the immortal Billroth represent not only the most advanced military surgery, but all that is best in general surgery as well.

In Russia who has not heard of Pirogoff and the gallant Reyer?

In this outline I have omitted reference to our own country as many of those present understand its military history as well, and some of them better than myself; beside, the brilliant successes of the medical department of our Army have been adequately portrayed by Capt. Harry E. Browne of the Army, from the writings of James Thatcher, Mann, Lovell, Letterman and Otis to those of Hammond, Barnes and Baxter.

As we sit here within our now peaceful State, within the shadow of the Capitol, our eyes are turned again to the orient as were those of our ancestors of a thousand years ago, and the familiar names of Canea, Crete, Actium and Thessaly are on every tongue, and if grim-visaged war, now showing his wrinkled front on the Grecian frontier, shall actually come to that historic people, I have no doubt that the glories of ancient Greek medicine will be surpassed by our Grecian military brethren at the close of the nineteenth century by the application of the methods now in vogue.

SURGERY OF THE KIDNEY.

BEING A STUDY OF A SERIES OF CASES IN WHICH METHODS OF DIAGNOSIS AND TREATMENT ARE ILLUSTRATED.

BY BAYARD HOLMES, B.S., M.D.

PROFESSOR OF PRINCIPLES OF SURGERY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

RENAL CALCULI.

In this series of cases none are more interesting from a surgical or from a pathologic standpoint than those in which calculi were found. The imagination is at once aroused to conceive the various causes of renal calculi, and the ingenuity is taxed at each effort to diagnose the condition and afterward to treat the case in the wisest manner in the emergency of the operating room.

Occasional attacks of pain in the right side of the abdomen in a multipara for twenty-five years. Insignificant renal and urinary symptoms. No interference in the general health. At last at 63 years of age suppurative pyelitis. Nephrotomy and removal of the stone, drainage of the kidney for four weeks. Closure of fistula.

Mrs. D., age 63, widow, was treated by me in St. Luke's Hospital on March 25, 1896. She had complained for some time of a pain and tenderness in the right hypochondrial region and had had a great many attacks of pains in this region during the past twenty-five years, which had been termed by her attending physicians liver complaint and congestion of the liver indiscriminately. These attacks had usually lasted five or six days and had been relieved by rest in bed and a light diet with the use occasionally of narcotics

to lessen the pain. Otherwise she had not been sick but had constantly suffered from frequent and sometimes painful urination though this had not been a marked symptom of the fore-mentioned attacks. Upon admission she complained of great pain in the right hypochondrial region and a very irritable bladder, loss of appetite and diminution of strength. Dr. Mary Bush, of Rogers Park, had seen her and had

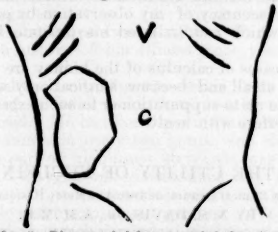

FIG. 1.—Mrs. D. Diagram of abdomen made before operation, showing the location of the tumor as outlined by palpation and percussion.

made a diagnosis of pyonephrosis of the right kidney. Upon examination the lungs were found normal and the heart slightly enlarged, the apex beat three and one-half inches from the median line in the fifth interspace. The patient was rather fleshy weighing 160 pounds and somewhat anemic. The spleen could not be palpated and the area of hepatic dullness was increased about one and one-half inches. In the right abdominal region was found a large and smooth tumor extending about two inches above the level of the umbilicus and

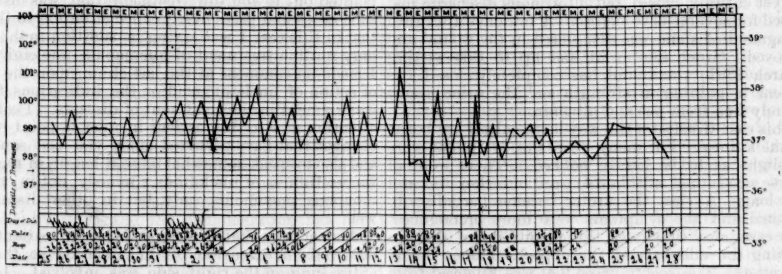

FIGURE 3.

three or four inches downward toward the brim of the pelvis. This tumor was very tender on pressure and practically immovable. Examination through the rectum and vagina outlined in its normal position a somewhat atrophied uterus. The right cul-de-sac was lower than the left and seemed to be filled with tissue that was tender on pressure and extended as high as palpation could be made. The condition is represented in the accompanying sketch (Figure 2) which was made at the time. Examination of the urine showed it to be cloudy and reddish, of which fourteen ounces were passed in twenty-four hours, specific gravity of 1.022, slightly acid containing a small amount of albumin and 20 grms., of urea to the liter, or 10 grms., per day. This urine contained considerable pus and some epithelium. Upon admission her temperature was 99.2 degrees, pulse 80 and her respirations 26 per minute.

On the second day after admission the urethra was dilated, the patient put in the knee-chest position, the bladder distended with air and a ureteral catheter passed into the left ureter. Four cubic centimeters of urine passed from this ureter in fifteen minutes. This urine was free from pus, albumin and casts. It contained a large amount of urea, 40 grams per liter.

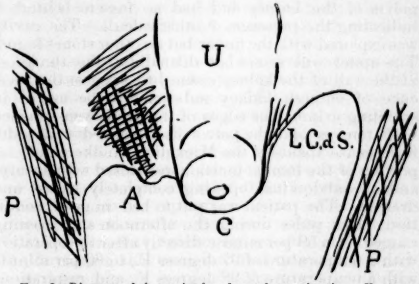

FIG. 2.—Diagram of the vaginal and rectal examination. U, uterus; P, wall of pelvis; L C d S, left cul-de-sac; A, thickened mass in right cul-de-sac.

Although the catheterization was readily accomplished the patient was so exhausted by this procedure that no attempt was made at this time to catheterize the right ureter. On the following day, however, the catheter was passed into the right ureter but nothing escaped the catheter except a small amount of thick greenish pus. The catheter was removed, washed and reintroduced without any other result. No long flexible catheter was at hand and the indications were considered complete for the removal of the fluid which evidently filled the right kidney. On the evening of the fourth day several small doses of calomel were administered and on the morning of the fifth day the bowels were moved with an enema and the patient anesthetized on the morning of the sixth day. The temperature at that time was 98.6 degrees F., pulse 72 and the respirations 20 per minute. Chloroform was given by Dr. D. H. Galloway and Dr. Bush and Dr. Clark assisted. The operation lasted forty minutes. A median incision was made into the abdomen for digital exploration. A large, hard, rough and nodular kidney was found floating in the abdomen. The patient was then turned upon her side and the ordinary curved lumbar incision made. Even with a finger in the abdomen, great difficulty was experienced in holding the kidney into the lumbar wound. The wall of the tumor at its thinnest point was punctured with the scizzors and a hard stone felt surrounded by about six ounces of watery pus. The opening into

the kidney was enlarged and a stone two and one-half inches long and one and one-half inches in diameter was extracted with some difficulty. It was found necessary to crush it with strong forceps and remove it piece by piece. It seemed to occupy the entire pelvis of the kidney and had no fassets behind it indicating the presence of other calculi. The cavity was explored with the finger but no other stones found. The ureter was somewhat dilated, but the thickness of the wall of the kidney seemed to suggest the presence of enough kidney substance to be useful in secreting urine. The edges of the pelvis were grasped with forceps and the pelvis itself packed with iodoform gauze inside of the Mickulicz handkerchief. A portion of the lumbar incision was closed with sutures and the abdominal opening completely closed and dressed. The patient was put to bed in good condition. Her pulse during the afternoon and evening ranged from 59 per minute directly after the operation with a temperature of 97 degrees F., to 80 per minute with a temperature of 98 degrees F., and respirations 28 per minute. There was a good deal of oozing from the wound but it was of a very pale and watery character and showed no tendency to the formation of clots. When burned in the flame it gave off a urinous odor. On the fifth day after the operation the discharge was almost entirely urinous and saturated the dressings with six ounces in twelve hours showing considerable activity in the kidney.

The accompanying temperature record (Figure 3) shows the uneventful progress of this case. The patient left the hospital on April 26 with the wound not yet entirely closed, but all urinous discharge had ceased for several days before. A few days afterward a fragment of stone was discovered in the wound and removed. Since this event and up to this writing (March 1897) the wound has completely closed, the patient is gaining in strength and the urine seems entirely free from pus and albumin.

This case illustrates the way large calculi are borne by the kidney. For many years the symptoms were so slight as to be hardly noticed. There were of course occasional attacks of pain but they did not last long. At last the ureter became partially obstructed and the symptoms were more pronounced. The case also illustrates the possibility of demonstrating the adequacy of the opposite kidney before operation. The scanty urine that was removed from the left ureter contained an excessive amount of urea and pointed at once to its health and the need of a larger amount of water to carry away the urea. Incidentally also this case shows the possibility of performing the most serious operations upon very old persons, even under such unfavorable conditions as attend the destruction of a kidney. Operations as serious as nephrotomy have been successfully performed on octogenarians.

Nephrectomy was thought of in this case, but the result shows that it is better to leave behind rather than remove remnants of a suppurating kidney provided there is no obstruction in the ureter. If necessary the kidney may be removed at a subsequent operation after the patient has recovered from the sepsis and the effects of the pain.

There are many cases of calculus which give rise to no symptoms and are only discovered postmortem. In many cases also small calculi pass into the bladder at intervals with dreadful pain. It is sometimes possible to follow such a stone along the ureter by the point of tenderness and at last with the cystoscope see it borne into the bladder as I have once done in a man, using for the purpose a Casper ureter-cystoscope. It is often possible to prove that the stone has been discharged into the l adder by using the cystoscope. This I have done and after making a drawing of the small stone with a bloody end my patient did me the kindness to urinate and demonstrate the accuracy of my observation by passing the calculus which had irritated his prostate for several days.

Many cases of calculus of the kidney are not surgical cases at all and become surgical only when they have gone on to suppuration or to such excessive pain as to interfere with health.

THE UTILITY OF NUCLEIN.

A Clinical Lecture delivered at Mercy Hospital.

BY N. S. DAVIS, JR., A.M., M.D.

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND CLINICAL MEDICINE, NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

At the clinic last week I showed you this patient when he exhibited most fully the physical signs and symptoms of croupous pneumonia. He had then been ill five days and was suffering from a moderately severe attack of the disease. The lesion was limited to the lower lobe of the right lung. At that time I hazarded the prophecy that unless an extension of inflammation occurred he would be likely to pass the crisis of his illness either on the night of the day that you saw him or within the two following days. I also pointed out to you the treatment that was usual in such cases and particularly called attention to the fact that in this case I was trying in addition to the ordinary routine treatment of pueumonia nucleinic acid. I made no comment at the last clinic upon the mode of action of nucleinic acid or the indications for its employment in the treatment of diseases. I call your attention now to this patient in order to point out the changes that have occurred since you last saw him, and also to speak somewhat more at length in regard to the usefulness of nuclein as a remedy, not in cases of croupous pneumonia only, but in other diseases as well.

Almost immediately after you saw our patient there occurred an extension of inflammation so that the entire lung on the right side was involved. During the week after this spread our patient became extremely ill. His fever continued high, in the neighborhood of 104 and 104½ at night time. He was delirious almost continuously. His breathing was very rapid, varying from 40 to 50 and sometimes 55 per minute; it was also shallow. He gradually grew cyanotic, his lips and finger-nails were bluish, and the skin over his body of an ashen gray. At one time he seemed so ill that recovery appeared impossible. On account of the very pronounced cyanosis and because of the constant delirium and unconsciousness of our patient, it was thought necessary to administer oxygen gas freely. It produced its usual effect; the cyanosis for the time was lessened, the mucous membranes became pink and the heart grew stronger and the pulse fuller. Our patient, however, under the influence of oxygen gas did not become entirely conscious or lose his delirium altogether, but his mental state improved. As good fortune would have it his temperature during the last three days has gradually lessened, and in all respects his condition has

slowly improved. You now see him conscious, with a temperature this morning of 99 and a temperature last night of only 100⅓. His pulse is medium in size, very regular, and from 80 to 85 per minute. The respirations, however, are still quick. You will observe that they number 35 to the minute, and are shallow. Percussion over the affected side of the chest demonstrates marked dulness over the entire right lung. It is filled with moist râles indicative of liquefaction of the fibrinous exudate.

So much for the present condition of our patient and for the history of his illness since you last saw him.

In regard to his treatment.—Aside from the employment of nucleinic acid there has been nothing unusual used. He has been given five grains of carbonate of ammonia every two hours; and during all the severe part of his illness strychnia was given in full doses. Oxygen was administered very freely by inhalation. Digitalis was given when the heart was most feeble and cyanosis was greatest. We are still administering strychnia and digitalis, but not frequently; the carbonate of ammonia has been discontinued. Of course the patient has been fed carefully and systematically, even during his delirium, but only liquid foods. His bowels have been kept regular, for the most part by the admistration of enemata. In this case I prescribed nuclein as I have frequently in others, because of the excellent experimental results obtained by Vaughan with the drug in animals infected by the pneumococcus. I was, moreover, led to employ it in this case particularly because a comparatively new preparation of nucleinic acid was put in my hands for trial—a stronger preparation than has usually been employed. Whether it has produced good effects or not in this individual case we will consider a little later, I will first refer to the mode of action of nucleinic acid and its mode of administration, and then consider its therapeutic value.

Nucleinic acid or, as it is commercially known, nuclein, was introduced to the profession by Professor Vaughan of Michigan University. Professor Vaughan has been most ably seconded in his experimental investigation of nuclein by Drs. McClintock and Novy of the same institution. It has been demonstrated by them, and the demonstration has been confirmed by various observers in other parts of the world, that nuclein possesses very pronounced germicidal power. Moreover, when it is administered to animals or to man it produces leucocytosis or phagocytosis, that is, a great increase in the number of white blood corpuscles. The amount of uric acid eliminated by the kidneys is augmented when it is taken. Nucleinic acid has also been shown to be absolutely innocuous. It can be given in doses of all sizes, and can be administered either by the stomach, hypodermatically, or injected directly into the veins of animals, without causing fatal results or illness. This is a rare combination of qualities. All of the germicides that we are accustomed to employ are poisonous to animals and to man, if used in sufficiently large doses. According to prevailing theories as to the cause of immunity to infectious diseases, phagocytosis is of prime importance, and a drug which will greatly increase the number of leucocytes in the blood we would expect to be of value to combat an infectious malady. Indeed, as you know, Metschnikoff assigns to phagocytosis wholly the power of combatting microörganisms that gain access to the tissues or the blood of animals or man, and he has declared that if we can increase the number of phagocytes in the blood at will and sufficiently, we have almost a certain means of combating infectious maladies. Whether this statement is absolutely correct or not can only be demonstrated by extensive clinic trials of those drugs that provoke phagocytosis, and extensive experiments in the laboratory with the same class of remedial agents.

Vaughan showed in some of his early experiments that nuclein administered hypodermatically to those animals that are very susceptible to infection by pneumonia will produce complete immunity toward the pneumococcus. It would therefore seem that nucleinic acid should prove an important remedial agent in the treatment of croupous pneumonia. His experiments also demonstrated that it readily killed staphylococci and streptococci. Some of his experiments showed that it produced at least an attenuation of the virulence of tubercular infection. Vaughan therefore urged that nucleinic acid be tried by physicians in pneumonia, in infection by staphylococci and streptococci, and in the early stages of tuberculosis.

Some very recent experiments by Hahn are of interest at this point. He has proven by the introduction of nucleinic acid into the blood of animals that the germicidal properties of the blood serum are very greatly increased. For example, by taking a given quantity of blood serum from a healthy animal and inoculating it with the staphylococcus, he found at the end of two hours that only 19½ per cent. of the microörganisms were alive; at the end of five hours, only 4 per cent. were alive. If nucleinic acid was introduced into the blood of the same animal, a marked leucocytosis was rapidly produced and the germicidal power of the blood serum was increased, so that when it was inoculated again with staphylococci, at the end of two hours only 2.9 per cent. were alive; and at the end of five hours only 1.7 per cent. The bactericidal properties of blood serum were shown to be increased more for the bacterium coli commune than for staphylococci. It is possible, as Hahn claims, to double the number of leucocytes in the blood in a few hours, and to double or even more than double the germicidal power of the blood serum by administering nucleinic acid. In order to produce a perceptible increase in the germicidal power of blood serum the number of white blood corpuscles must be increased to 13 or 14,000 per cubic centimeter.

The remedy has not been employed as extensively as it might have been, because at first it was recommended that it be used only hypodermatically, and few remedies that are employed hypodermatically gain very general use. Patients object to frequent puncture of the skin by a hypodermic needle if thereby they are not immediately relieved of pain. But it has been shown by the investigators at Michigan University that the drug can now be employed in solutions of 5 per cent. strength by the mouth, and quite as good results can be obtained in this way as by its hypodermic use. I doubt not, therefore, that we will soon see it more generally tested. We will then be better able to determine its exact degree of utility as a remedial agent.

There are several preparations upon the market which bear the name of nuclein. For the most part these are liquid preparations and are solutions of nucleinic acid. Personally I know nothing of the genuineness or value of these various preparations. Prof. Chittenden of Yale University, has made a care-

ful analysis of them, and in a recent publication has asserted that the only preparation which he has found to contain any considerable quantity of nucleinic acid (and it is the nucleinic acid which is the active principle of the preparation) is the solution which goes by the name of nuclein prepared by Parke, Davis & Co., of Detroit, Mich. My own experiments have been both with this and other preparations, but chiefly with this preparation of nucleinic acid. The clinical results which I have obtained by its employment have been conflicting. I have used it in a great variety and in a large number of cases, sometimes with encouraging results and sometimes with apparently no results at all; yet often enough with apparent good effect to make me willing to test the drug still further, particularly as we know that it is innocuous.

I have used it, I think, in ten or a dozen cases of pneumonia. I tried it at first hypodermatically, and stopped using it because it was so disagreeable to my patients; more recently I have tried it again, administering it by the mouth. In no case has the course of the disease been shortened. The difficulty of estimating the value of a drug by its trial in a given case is well illustrated in the one before us. It is quite impossible from any one or from a dozen cases to judge of the utility of a given drug. Its effects must be carefully watched in very numerous cases, in cases that occur in different years and in different epidemics, and cases of very different degrees of virulence. The patient before you has suffered from an intensely severe form of croupous pneumonia, and has been so seriously ill that at one time it seemed impossible for him to recover. The disease has been prolonged by the extension of the lesion from one part of the lung to another. In ninety-nine cases out of a hundred as severely ill as he was, recovery would not take place. Fortunately in this case recovery is taking place. That nucleinic acid has played a part in producing this recovery, we can not say with certainty. We expected, or hoped rather, that by its administration the bactericidal properties of his blood serum would be so increased as to prevent spread of the lesion in the lungs. The drug was employed in this case for about thirty-six hours before any extension of the disease occurred; but it did not, as you see, prevent the extension. It may, however, have played a part in making the patient better able to withstand the severe attack of illness that he has gone through.

The best results which I have seen from the employment of nucleinic acid have been in cases of infection by pyogenic organisms, in cases where there was plainly infection but not actual suppuration. For instance, in quinsy where a tonsil was enlarged in the way characteristic of this form of sore throat, and when suppuration seemed imminent the drug has apparently prevented suppuration. Such good results have been obtained only when it was administered early and frequently. In the treatment of bubos, variously caused, similar results can often be obtained. After suppuration is established it does not seem to influence it. It is well known that all glands infected by pyogenic organisms do not suppurate. However, I have used the drug so often in such cases as to have acquired some confidence in its ability to prevent suppuration. I have used the drug in several cases of suppuration in deep-seated organs, from which drainage could not be perfectly established, but have never gotten positively good results

Some of you may remember a case in this hospital last winter, of abscess of the lung, a simple abscess, not a tubercular one. In that case nucleinic acid was administered hypodermatically just so soon as there was any suspicion of an abscess in the lung; and it was used persistently without appreciable effect. During the last summer I have employed it in two cases of intense pyelitis. The first occurred as a complication of disease of the spine which produced a paralysis of the sphincter muscles of the bladder, causing thereby retention of urine. The bladder was so greatly and so long distended with urine that the latter underwent decomposition and provoked inflammation of the bladder. The inflammation extended to the pelvis of the right kidney. When the patient first came under my observation he was extremely ill, suffering from a continuous fever, sweating at night, able to retain no nourishment, with a very feeble pulse and apparently not likely to live more than a week, if so long. The patient was removed from his home, where he was receiving very imperfect care, to the hospital; his bladder was frequently perfectly emptied and was carefully washed. At the same time nuclein was administered persistently. Teaspoonful doses of the 5 per cent. solution were given by the mouth once in two hours at first. The kidney, which had been greatly enlarged by the accumulation of pus and urine in the pelvis of it, rapidly diminished in size, the tenderness of the organ gradually disappeared, the fever disappeared with rapidity, vomiting ceased and nourishment was taken with avidity and ease. A somewhat rapid recovery took place; not a complete recovery, for that is probably impossible, but a comparative recovery. He now voids only a small amount of pus with his urine; he has once more gained control of the sphincter muscles of the bladder so that catheterization has no longer to be resorted to, and is feeling in every way comfortable. His lower limbs are of little use to him.

In this case, too, we are left in doubt as to how much the improvement has been effected by nucleinic acid and how much was due to the fortunate thorough drainage of the pelvis of the kidney through the bladder by regular removal of urine from the latter organ. Quite as good results have been observed where nuclein was not used.

In furunculosis it has repeatedly seemed to lessen the number and size of the successive boils and to make the disease of less than the usual duration.

I have tried nuclein in two cases of malignant endocarditis. In cases of this disease above all others we would expect a drug that is innocuous and that possesses such marked bactericidal properties to be beneficial, since the infection is in the blood channel. But in neither case has improvement been observed that seemed justly ascribable to nuclein. One of these patients you know, for he is now in this ward. You examined him when he first showed symptoms of malignant endocardial trouble, and you have seen embolism occur in his arm and leg, and finally gangrene of one foot develop. Nuclein was administered to him every two hours for several weeks. The patient, as you will remember, had daily a high temperature which lasted for an hour or two only. It first reached 106, and quite constantly ranged above 104. After the nucleinic acid had been used for some days the temperature gradually fell, its daily maximum being 102 or 102½. While the temperature ranged high there was both morning and evening a

period of elevation. Usually the morning temperature was highest. The highest rises of temperature coincided with the occurrence of embolism in new localities and followed it for one or two days.

The patient is steadily failing in strength. The noticeable diminution of fever is quite as probably due to the occurrence of no new embolism as to treatment. The failure of the treatment in this uniformly fatal disease is not unexpected.

As nucleinic acid increases the bactericidal power of the blood, it might be expected to be especially serviceable in those diseases in which the blood is the seat of infection. We have no clinical or experimental evidence bearing upon this point.

Vaughan reported good results from the employment of nuclein in cases of diphtheritic sore throat produced by streptococcus infection. He used it both locally upon the throat and administered it hypodermatically. I have also used it in these cases both locally and internally. I have never felt so great confidence in it, however, as to be willing to discard other germicides. I use invariably in addition to it the peroxid of hydrogen either with the atomizer or with a syringe. Recovery has occurred without complications in all cases of this kind that I have treated in this way.

Vaughan's experiments with nuclein in the laboratory on animals affected by tuberculosis were sufficiently flattering, although he could not produce absolute cures or perfect immunity by the drug, to make it appear of probable utility, at least in cases of incipient phthisis. He urged the profession to try it. I have endeavored to watch its effects in a large number of cases. If it does good it probably does so in part by lessening the virulence of the tubercle bacilli and in part by preventing superimposed infection by pyogenic organisms, to which there is always so strong a tendency. I have often thought that when given in the first stage it delayed suppuration and excavation.

Since nuclein produces experimentally such marked phagocytosis and increases the bactericidal power of blood serum, it is a drug well worth a thorough clinical test. From clinical trials it seems most certain to do good in furunculosis and similar pyogenic infections of mild type. It is especially useful as a prophylactic or attenuant when such infection has just occurred. It deserves more extensive trial in pneumonia and beginning tuberculosis. I know of no contraindication for its employment except its augmentation of uric acid and consequent possible aggravation of the uric acid diathesis.

CONCERNING THE PRESENT CONDITION OF STATE MEDICINE IN THE UNITED STATES.

BY FRANKLIN STAPLES, M.D.

WINONA, MINN.

State medicine as now understood belongs entirely to modern times. It began in England just before the middle of the present century, when Edwin Chadwick, a barrister, made what has been called his "Epoch-making report" to parliament on the health of towns. By his investigations and report he secured the attention of the government and the interest of the people; laws were passed, and English sanitary work and control were inaugurated. More than fifty years have passed, and England's system of sanitary control, both inland and marine, is a strong feature of her government. The statistics in the Register General's office show that the annual death rate for England and Wales for the ten years 1871-1880, averaged 21.27 per 1,000; while for the period 1881-1890 it was 19.8, a decrease of more than 11 per cent. The former death rate in England was given at 32 per 1,000. The present annual death rate in the United States varies slightly in different States and cities from 16 to 18 per 1000. In some favored cities and towns it is less.

The beginning of State medicine in the United States was in this wise: In 1849 the Governor of Massachusetts, by authority of an act of the Legislature, appointed a commission consisting of three citizens to prepare a plan for a sanitary survey of the State. Lemuel Shattuck, Nathaniel P. Banks and Jehiel Abbott were made to constitute this commission. The work of investigation began, but delays were inevitable, and the Massachusetts State Board of Health was not formed until the year 1869. Dr. Henry I. Bowditch was properly placed at its head. The names of Shattuck, Banks, Abbott and Bowditch of the old Bay State are well remembered.

Because of the frequent invasions of yellow fever in New Orleans the Legislature of Louisiana established a State Board of Health in 1885, whose duty was to maintain a quarantine and have some control of the sanitation of that city. This, then, was the first named as a State Board of Health in the country. The powers of this Board were enlarged in 1867. Its service was valuable for the purpose at the time, but it had not at first the means and general power of control that have since been given to State boards of health.

A little more in the line of history is best given in an account of the work of Dr. Bowditch. In the centennial year of 1876, an International Medical Congress was held in Philadelphia. The president of the Massachusetts State Board made the address on "Hygiene and Preventive Medicine." The discourse was historical, showing much of the condition of things at the time, and the work of pioneer sanitarians. He said: "I have been requested to speak to you on public Hygiene and its great resultant, State preventive medicine, as it appears to an observer looking back upon the centennial period now just closing."

"As a matter of vital importance to the well-being of any community, and, as such, worthy to be cheerfully and amply sustained by great cities and States, public hygiene, as we now understand that term, has, till within a short time, been wofully neglected, save when, under the stimulus of some great and terrible epidemic, frantic but temporary efforts have been made to stay the plague by hygiene or by other means. Of late, however, a new and better era seems opening to our view, and State preventive medicine affords us higher hopes for all coming time."

Farther on in this address Dr. Bowditch spoke of the work immediately preceding, viz., from 1869 to 1876, as that "which is destined to continue and progress while the nation itself lives, the noblest and most beneficient of all, viz., that in which the profession, joining heartily with the laity and aided by the material and intellectual resources of great States, will study to unravel the primal causes of all disease with the object of preventing it. It is the epoch of State preventive medicine.[1] As it now seems, this

[1] Address.—Transactions International Medical Congress, Philadelphia, 1876.

was a true representation of the condition and spirit of the times and was correctly prophetic.

As shown above, the organization of State boards of health in this country began in Massachusetts in 1869. Time was required to bring the country to a general understanding and appreciation of the advantage of State sanitary laws and management. Eight years were required for the establishment of the first ten boards. A little more than a quarter of a century has passed, and in the forty-six States there are thirty-eight State boards of health, which are operating under laws of uniform general requirements.

The following figures represent the sanitary machinery of a single State; 1,804 local boards of health; 40 in cities, 355 in villages, and 1409 in townships. These report vital statistics and anything notable in disease-prevalence to the State board monthly, and receive its directions (Minnesota).

Some ways and means.—Interstate and sea-coast notification is now an important means of protection from the importation of contagious diseases. This is possible only by coöperation between sea-board quarantine and State organization. To illustrate: A steamer arrives with immigrants, is inspected and passes quarantine at New York. No cases of contagious disease are found on board, but the vessel is from an infected port, and certain passengers are supposed to have been exposed to contagion. The New York quarantine telegraphs the secretary of the State of Minnesota, for instance, that suspected immigrants have left ship and are on their way to such a town in the State. The health officer of this town is notified and his inspector is on the lookout. The same arrangement for notification to the State holds with the United States ports and with the Canadian quarantine in the St. Lawrence River; this much for complete organization, interstate and international reciprocity and governmental control.

The great discoveries and advances in bacteriology made in late years have laid a foundation for practical work in preventive medicine not before known. Laboratories are provided for by State and municipal authorities, and expert bacteriologists and chemists are employed not only in the analysis of water and food products, but in furnishing the means of diagnosis of disease, and, of late especially, in developing the various means for rendering the human body immune to the poison of infection. Physicians and scientists make the discoveries and improvements, and the State may well aid in supporting the same and extending the advantages in the public service.

The department of diseases of animals in the work of State boards of health is an important one. The flesh of animals as a food product, and the liability of the communication of disease from animals to man through milk products and in other ways, make this an essential part of State sanitary management and control.

The influence of State medicine in the United States on the advancement of the standard of medical education has been notable. The position and work first of the Illinois State Board of Health, then of other States by their examining boards, in fixing a lawful standard of requirements for admission to the practice of medicine in the States, has given character to medical practice in this country not before possible. Competing medical colleges of the lower grade have been allowed the choice of elevating their courses and standard of instruction or of retiring from business. The condition of the few States which have not fully advanced to the enactment of wholesome laws has been pitiable. The quacks of the country, being refused admittance to or driven out of the better States, have sought refuge here, and are doing their work in communities whose State governments have not yet advanced. Time is required to advance a whole people by education, but the higher civilization lies in this direction.

The great American Public Health Association has for its territory the United States, the Dominion of Canada, and the Republic of Mexico. Its membership includes the leading sanitarians of these countries, and its published literature covers the field of modern public hygiene and State medicine. Prof. Stephen Smith of New York City was the founder of this Association and its first president (1872, 1873 and 1874). Dr. Irving A. Watson, Concord, N. H. is the secretary.

The National Association of State Boards of Health maintains an active existence, and holds annual sessions for the discussion of matters pertaining to sanitation and for promoting unity of action.

The economic advantage of public sanitation has been shown as an argument in favor of the public support of State medicine; that to prolong the average time of active human life by the suppression of preventable disease, is of much greater advantage to the State than is the cost of the means employed. Moreover, it is agreed that to ward off the calamity of disease and to prevent the coming of pestilence, is to increase the sum of human happiness and to elevate the race. The standard of what is done in this way now indicates the degree of intelligence and the virtue of a people.

Attempts have been made from time to time to establish a National Board of Health, and at one time with temporary or partial success. Different plans have been proposed with reference to having the different States and State boards represented in the National Board; also to having this a Department of State, with its chief officer a member of the cabinet. The national control is now in the hands of the Marine Hospital Service in the Department of the Treasury. All matters of quarantine are in charge of this office. Reports, foreign and domestic, are made to it, including vital statistics, disease prevalence, and weather reports. A weekly bulletin of Public Health Reports is issued and distributed regularly to health officers throughout the country.

At the first Pan-American Congress held in Washington, D. C. in 1893, a Committee on Department of Public Health was appointed, which committee when complete consisted of Dr. Henry L. E. Johnson of Washington, D. C.; Dr. William Pepper of Philadelphia, Pa., and Dr. Charles A. L. Reed of Cincinnati, Ohio. This committee reported to the second Pan-American Congress, held in the City of Mexico in November, 1896, the draft of a bill to be presented to the Congress of the United States which, becoming a law, would create a National Department of Public Health and provide for its support. This bill specifies the duties of the Secretary at length, showing the extent and importance of this department. This report was accepted by the Congress and the bill has been presented to the U. S. Senate. (SEE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, March 6, 1897).

A committee of the AMERICAN MEDICAL ASSOCIA-

TION, of which Dr. U. O. B. Wingate, Secretary of the Wisconsin State Board of Health, is chairman, is also engaged in the preparation of a bill for the establishment of a National Department of Public Health.

It remains for the American people to understand the case, take a lively interest therein, and help the action that shall be for the greatest good.

GONORRHEAL OPHTHALMIA—REPORT OF A CASE TREATED WITH ARGONIN.

BY FRANK TRESTER SMITH, A.M., M.D.

PROFESSOR OF DISEASES OF THE EYE, CHATTANOOGA MEDICAL COLLEGE, CHATTANOOGA, TENN.

C. D. R., male, aged 33. First seen Nov. 25, 1896. Two weeks before, right eye became sore, for which he was treated by his family physician. It was extremely painful until two days before, when something seemed to give way and water gushed from between the lids, after which it became easier.

There was an abundant purulent discharge. The cornea was not clear at any point but had a fleshy appearance and bulged from the general curvature of the eyeball (total staphyloma).

The man lived at some distance in the country and failed to attend regularly, coming only once or twice a week. For two weeks he was treated in the usual way with boracic acid, bichlorid and nitrate of silver with very little effect on the discharge, which was abundant from the time first seen. A microscopic examination by Dr. E. C. Anderson, chief of the Microscopic Laboratory of the Chattanooga Medical College, showed the presence of gonococci in abundance. The patient had gonorrhea.

Thinking this a favorable case to test argonin, as the eye was hopelessly lost, a 5 per cent. solution was instilled into the eye. The application caused no pain and a solution was given the patient for use at home. Four days later he reported that the discharge had almost entirely ceased after the first use of the argonin. He had kept samples of the discharge, which were preserved on cotton swabs made by wrapping pledgets of cotton on toothpicks. These were sealed in envelopes as soon as obtained. An examination of these failed to show a single gonococcus. A sample of the discharge taken direct from the inside of the lid was found to contain a few, very few gonococci.

The argonin was continued. A few days later the eye again became very painful. The tension was increased to plus 1 and the staphyloma was larger. The ball was incised and the clear lens escaped. There was no pus inside the eye. There was no further pain and the patient ceased his visits owing to sickness in his family. One of his neighbors reported that he had no further trouble. The fellow eye was unaffected during the whole of the treatment.

This case seems to indicate that argonin can be used safely in the eye; that it is less irritating than nitrate of silver and from its wonderful effect on the discharge and the development of the gonococci it appears to be the ideal remedy in purulent ophthalmia. Further tests will demonstrate its true value.

ONLY A DROP OF WATER.

BY D. LICHTY, M.D.

ROCKFORD, ILL.

Dr. Jacobi, after deploring the fatality following tracheotomies in diphtheria and membranous croup, says: "The results of *any* treatment in *membranous croup* are of so *doubtful* a character that *any* observation both faithfully made and reported may be of service."

This passage, italicized by myself, will be the apology for offering and having recorded a single successful item in the after-treatment of croup with tracheotomy.

Every one with experience in the after-treatment and care of the tube in tracheotomy whether for croup or diphtheria, must be painfully conscious of the inefficiency of the methods thus far suggested and employed to maintain a sufficient degree of moisture in the tube to prevent the hardening and drying of the exudate and the sticking of the membranes in the dry metallic tube; sprays and vapors can not be generated in volume great enough, or be induced to enter the narrow aperture of the tube in sufficient quantity to even dampen its lumen a quarter of an inch from its distal extremity, while the dry air passing on at each inspiration impinges on the tracheal mucosa only to *absorb* the little remaining moisture the diseased conditions have created; the result is, a hard brown plug soon forms within and around the proximal end of the canula that neither swabs or hen's feathers can remove; and the distress of flap-valve respiration, or the hazard of occlusion and the prompt removal of the tube and its re-insertion confronts the anxious attendant: it is this difficulty more than any other that interferes with the successful local after-treatment of tracheotomies, and makes the postponement of this surgical procedure often too long deferred.

A recent experience in this line, when every modern means of supplying moisture to the trachea through the tube was being employed, with the threatening failure that usually follows, it was suggested, by recalling the experiments along the line of Rossbach and Calvert in supplying moisture to the inner tracheal area by hypodermic means that "normal salt solution" might be safely supplied through the canula in quantities sufficient not only to moisten the interior of the tube, but to also diffuse over the mucous surface of the trachea and membranes; the experiment was so satisfactorily successful that the nurses, the patient, a little three-year old, and the attending physician were all wonderfully relieved of the further impending peril of occlusion of the tube, and progress, from the introduction of this feature, went on to complete and uneventful and uninterrupted recovery, the tube being removed on the eighth day.

The salt solution was warmed to the temperature of the blood and allowed to trickle down the canula by means of the ordinary medicine dropper, one, two or three drops, in slow succession until the to-and-fro respiratory râle indicated that there was moisture enough, and soon the patient would pass into calm repose; this would be repeated as often as the indications called for it, and instead of the violent paroxysms of dyspnea, with coughing and straining to expel a plug of dried and hardened mucus and membrane, the exudate poured out a stringy, purulent stream easily caught up by the nurses on pledgets of gauze, or wiped away with an easy whirl of the sterilized hen's feathers in the tube.

Did this normal salt solution mingling with the remaining tracheal mucus have a solvent or bactericidal effect on the pathologic membrane?

If this observation will reach those who have oppor-

tunity for more extended trial, and it should prove repeatedly as beneficial as it seemed to in this case, the offering of a "Drop of Water" will have added to it the blessings of medicine as well as those of charity.

A CASE OF CONGENITAL SYPHILIS COMPLICATED BY A MIXED INFECTION WITH THE STAPHYLOCOCCUS AND STREPTOCOCCUS PYOGENES.

Read before the Chicago Pathological Society, Jan. 11, 1897.

BY H. GIDEON WELLS, PH. B.

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On April 29, the body of a child was brought to the laboratory of Rush Medical College for examination. The autopsy was performed immediately, before postmortem changes could have possibly occurred. The child was born in the practice of Dr. A. B. Strong, who furnishes the following history:

The mother was 20 years of age, a primipara, with a good personal and family history. She had been married one year. The labor was an uneventful one, a vertex presentation. The child was alive when born, but died after gasping a few times. The father was 23 years old and denied any specific history, as did the mother, and presented no suspicious scars. Dr. Strong, his interest in the case having been aroused by the condition of the child, conducted a careful investigation into the history of the parents, but was unable to obtain the slightest evidence of a primary specific infection in either. The mother was troubled after the birth of the child with constant dreaming, a symptom not present before that time, and which was not relieved by administration of potassium iodid. The father spoke of aches and pains in the lower extremities which he said he had had for years. On examination two subcutaneous swellings were found attached to the crest of the tibia, just below the tubercle, and a third on the inner side of the right femur. Treatment with the iodid of potassium and the biniodid of mercury was followed by some reduction in the size of these swellings and the disappearance of the subjective symptoms. On cross examination the patient stated that these swellings had been present since he was a boy. Asked about his father he stated that he knew little about him beyond that he was a sailor. Beyond this reference to the third generation there was no obtainable evidence as to the source of infection.

The findings at the autopsy were as follows:

The body was that of a child, 50 cm. long, and weighing 2500 gm. The abdomen was rounded and firm, and the umbilical cord, which was moist and fresh, was tied with a silk ligature. The skin was covered over almost the entire body with eruptions, most numerous about the ears, face, forehead, hands, feet and buttocks. Most of these eruptions contained a serous fluid, but many were filled with a purulent fluid, and some with a firm, cheesy substance. The peritoneal and pericardial cavities were normal, as were the pleural except for a thin, white, pellicle, covering the pleural surface of the base of the left lung. The heart muscle showed several white, indurated areas, the largest lying on the ventral surface, and about the size of a dime. The heart was not opened, but on account of this rather unusual condition was preserved for a more complete special examination by Dr. Le Count. The thymus contained several soft, light colored areas, which on section yielded a gray viscid, fluid. Otherwise the organ appeared normal. Beyond an unusual amount of blood the thyroid and salivary glands showed no changes. The lungs were firm, noncrepitant throughout, and pieces placed in water sank quickly to the bottom. They presented both under the pleura and in the deeper parts of the lungs, white areas, firm and smooth on the cut surface—a typical pneumonia alba. The liver was large and firm, the right lobe reaching nearly to the level of the umbilicus. On section it was found to be very full of blood, but there were no other changes. The biliary system was normal.

In the stomach was found a large amount of jelly-like mucus, and the intestines contained the usual amount of meconium. The cecum was attached to all the adjacent coils of intestine by firm, fibrous adhesions, except the vermiform appendix, which was free. The mesenteric glands were enlarged.

The kidneys and supra-renal capsules appeared normal. The spleen was slightly enlarged and full of blood. No changes could be detected in the central nervous system. At the epiphyses of both the long and short bones the line of ossification was very broad, irregular and hemorrhagic. Ossification had not begun in the lower epiphysis of the femur.

Under the microscope many changes very typical of syphilis in the new-born were observed. The description of the various organs follows:

Lungs.—Both lungs were almost completely consolidated, the air vesicles having been dilated in but a few places. The expanded vesicles contain a granular substance which in most places completely fills the lumen, and contains many poly-morpho-nuclear leucocytes and some flattened epithelial cells. The walls of the vesicles are quite thick, with some infiltration of leucocytes, and with greatly dilated capillaries. In many places the epithelial lining of the alveoli is absent. The formation of the consolidated portion by non-expanded alveoli can be determined only with difficulty, because of the degree of infiltration of the tissues. Everywhere, within and between the alveolar walls are poly-morpho-nuclear leucocytes, for the most part scattered singly but in some places collected in groups of a dozen or more. Occasionally the alveolar walls have been separated by slight hemorrhages, in which the blood contains many leucocytes but is not disorganized. Practically all of the bronchi and bronchioles have been filled with masses of cells, in some of which the nuclei stain deeply, in others scarcely at all. The walls show a diffuse infiltration with leucocytes, many of which are also to be found in the contents of the lumen. All the vessels are dilated with blood, and the walls of the smaller arteries are greatly thickened so that the lumen is practically occluded. The pleura, which is quite thick, is not as much infiltrated as the subadjacent tissues, but in the outer portion many of the nuclei fail to stain, and the tissue elements are much disorganized. The vessels in the pleura are much dilated with blood, and in some places slight hemorrhages have occurred.

Liver.—The vessels are greatly engorged, but nowhere can the blood be found outside the regular channels. The connective tissue is everywhere infiltrated with leucocytes, which are also collected in groups in many of the intra-lobular capillaries. The parenchyma cells in some places seem slightly vacu-

olated and their nuclei stain faintly. The capsule is not thickened nor infiltrated, although the engorgement is most marked immediately beneath it.

Kidney.—The glomeruli completely filled Bowman's capsule, the capillaries being filled with blood. In a few cases the glomerulus is forced to one side by an extravasation of blood. In the convoluted tubules some of the epithelial cells lack nuclei, and a few of the collecting tubules contain blood. Occasionally poly-morpho-nuclear wandering cells can be found in the inter-tubular connective tissue. The blood vessels are generally filled with blood containing an unusual number of leucocytes.

Spleen.—This organ is extremely hyperemic, every vascular space being filled with blood. The Malpighian corpuscles appear small in contrast with the superabundant pulp surrounding them, but no changes can be detected in any of the structures.

Adrenal.—In the capsule of this gland are a few collections of epithelial cells packed closely into columns, with very little stroma, probably accessory suprarenals. Beyond a large amount of blood no changes are obseved.

Gastro-intestinal tract.—Beyond a slight infiltration of the connective tissue of the villi of the small intestine no changes can be detected.

Thymus.—The follicles show no change except those located near the walls of the abscesses before described. Here there is a marked increase in the connective tissue between the gland elements, and a considerable infiltration with poly-morpho-nuclear leucocytes. In some follicles the glandular cells have mostly disappeared and many fragmented and faintly staining nuclei are seen, beside numerous concentric bodies staining with eosin and containing no nuclei, probably degenerated corpuscles of Hassell. Surrounding the abscess is a wall of varying thickness, consisting of an embryonal form of connective tissue with numerous large and deeply staining nuclei. This wall contains very few vessels, and is infiltrated with many poly-morpho-nuclear cells. The contents of the abscess consist chiefly of a granular matrix containing fragments staining with hemotoxylin, cells with a granular protoplasm and faintly staining nuclei, leucocytes and occasional red corpuscles. The leucocytes are the most numerous of these elements and are collected, especially near the walls of the abscess.

Thyroid.—Only a small proportion of the alveoli contain colloid material, most of them having their walls in apposition and showing no evidences of secretion. Colloid material is found in some of the lymph spaces of the secreting areas. There is a marked dilatation of the capillaries, especially about those alveoli which contain colloid. No other changes can be observed.

Skin.—A section through one of the eruptions shows the stratum corneum separated from the stratum granulosum by a homogeneous substance staining faintly with eosin and containing leucocytes, red blood corpuscles, squamous epithelial cells, epithelioid cells and shreds of necrotic tissue. In the center of the vesicle the stratum granulosum is entirely gone, only a thin membrane separating its contents from the connective tissue below, which contains many round and poly-morpho-nuclear cells, especially just below its floor.

Cultures were made from the heart's blood, liver, kidney, thymus, lung, pleural exudate and the eruptions on the skin.

From the skin, cover slips showed many groups of cocci. The cultures contained but one form of organism, a coccus staining by Gram's method, arranged in groups and agreeing in its growth on culture media with the staphylococcus pyogenes aureus. Cover slips made from the exudate on the pleura showed numerous short chains of cocci. The cultures showed the presence of a streptococcus staining by Gram's method, and agreeing in its culture growths with the streptococcus pyogenes. Inoculations with this streptococcus into guinea pigs showed it to be very virulent, producing death in a short time. Cover slips and cultures made from the abscess in the thymus showed the presence of an organism apparently identical with that obtained from the pleural exudate. All the other organs gave negative results.

It is therefore evident that we have here to deal with a case of congenital syphilis, complicated by a mixed infection with the staphylococcus and streptococcus pyogenes. The diagnosis of syphilis is based upon the typical pneumonia alba and the universal and characteristic osteo-chondritis. The mixed infection is proven by the presence of the microörganisms in smear preparations from the thymus, pleural exudate and skin eruptions, and by the growth of similar organisms in cultures made from these sites.

Such a complication of infections is very unusual, at least, for a search through the more recent literature has failed to reveal any reference to a similar case. In fact, mixed intra-uterine infections of any kind have been demonstrated but a very few times. One of the most recent of such cases is that reported by Dürck (*Münchener med. Wochenschr.* No. 36, 1896), who obtained from the tissues of a child born of a typhoid-stricken woman, which had lived but a few minutes, the typhoid bacillus and the staphylococcus pyogenes.

Infection with the pus microbes seems also to be a rather rare occurrence, by far the largest part of cases in which intra-uterine infection has been proven being cases of typhoid fever. Of the pyogenic organisms the streptococcus seems to make its way to the fetus much more often than the staphylococcus, as would be expected from its greater tendency to produce a general infection. Gustav Ricker (*Centralbl. für Allgem. Path.*, 1895, p. 49) has reported two cases of intra-uterine infection with the streptococcus, in one of which the mother had a streptococcus diphtheria, in the other a streptococcus infection following an injury. Lebedeff (*Revue Mens. d. Mal. d'Enfance*, March, 1887) has reported the case of a woman with erysipelas of the legs giving birth to a child with an erysipelas, and in whose skin a streptococcus was found. Here, however, the infection was traced from the mother to the child through the lymphatic system.

Chotzen (*Vierteljahrschrift f. Dermat.*, 1886) has observed that a streptococcus can be found in the tissues of a large proportion of the children dying of hereditary syphilis, basing his work on similar results obtained by Kassowitz and Hochsinger (*Wiener med. Blatter*, 1886). However, these results have no bearing on intra-uterine infection, as the cases were all of children who had lived some time, whereas in the body of a six months fetus Chotzen failed to find the organism.

It is to be noticed that in all cases of intra-uterine infection reported there is some evident infection of the mother from which the infection of the fetus has been derived, while in this case there is absolutely

nothing in the history that throws any light on either of the infections. It is possible that the mother, being in vigorous health, resisted infection by the organisms that had gained entrance into her system, while the diseased tissues of the fetus offered a favorable site for their localization and multiplication, it having been shown by Lubarsch (*Virchow's Archiv*, Bd 124, Heft 1) that organisms can and do pass through the intact placenta. It has also been suggested that the infection might have occurred from outside, say from a preëxisting endometritis, through the medium of the fetal membranes. As to the possibility of such a transmission nothing can be said, as, unfortunately, the placenta and membranes were not available for examination. That the infection did not occur either just after or a very short time before birth is shown by the presence in the tissues of a reaction to the infection, as for example the formation of a connective tissue capsule about the abscesses in the thymus, which must have required a considerable period of vital activity after the inception of the infection.

It is interesting to note that in the thymus of this case there existed abscesses produced by pyogenic organisms (as is proven both by the bacteriologic findings and the microscopic appearance of the lesions) since similar areas have been generally considered as quite typical of congenital syphilis. They were first described by Dubois (*Gaz. Méd. de Paris*, 1850, p. 393), and by many authors named after him Dubois' abscesses. Orth (Pathologische Anat., p. 89) considers them as due simply to the syphilitic virus, and no relation between them and pyogenic processes seems to have been demonstrated. This case suggests, therefore, the possibility that in many of the cases of thymus abscess observed in syphilitic children, careful bacteriologic investigation would have demonstrated the presence of pyogenic organisms, although it is possible that the abscess formation may represent the site of a preëxisting syphilitic lesion.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from page 652.*)

CHAPTER IV.—NOTICE ON HOSPITALS.

Charité in Berlin; The Allgemeine Krankenhaus in Vienna; Small German hospitals; Hospitals in England, St. Bartholomew Hospital in London, and others; Hospitals in France, Hôtel Dieu and Charité in Paris, and others; Hospitals in Sweden, Denmark and Russia; Diet; Mortality, small number of operations; Ventilation, J. Pringle; Proposition to improve hospitals; Experiments in putrefaction; In-lying hospitals.

Whoever, in the middle of the last century, strapped his pack to become acquainted with the German hospitals was soon at the end of his wanderings, for no country possessed fewer hospitals than Germany. In the Catholic countries the sick were better cared for than in the Protestant, in so much that in the seventies Vienna, Prague and Olmütz are said to have had more hospitals than all the Prussian cities taken together. In those countries, wherever public hospitals were lacking, their place was filled by the hospitals of the Brothers of Mercy, and the Sisters of St. Elizabeth.

In the first half of the century the most important hospital in Germany was the *Charité in Berlin*. King Frederick William gave for that purpose a large house which, in the year 1710, on account of the plague, was built outside of the city. In this the poor patients from the army and among the citizens of Berlin were to be treated without charge and the infirm aged cared for till their death; domestics with tedious diseases had to pay. Besides these, patients with contagious diseases and skin diseases, and all venereal women were received. If the harlots were cured, they were taken to the work houses "in order to drive out of them their former desires." To check infanticide, pregnant women were received in the hospital without charge, eight days before delivery. According to a plan projected by the surgeon-general and body-physician Holtzendorff, the new institution was to serve at the same time as a training school for military physicians. The monarch himself gave the institution the name Charité. "Because this institution was a public work of Christian love, benevolence and generosity, so His Royal Majesty, himself gave this house the name Charité, and commanded that it should be called so in future, and particularly for this reason, that it be always free to everyone, out of its abundance, from Christian love to them, to succor the poor and sick, or as they say, to render *charité*." (Eller). The hospital was opened in 1727, after they had brought together 300 sick and poor with the infirm street-beggars from Berlin. The latter were taken into the lower story, called the hospital; the patients proper, who when bedridden were carried out from the city in litters, into the upper story, the so-called Lazareth. This consisted of four equal wings, which abutted upon a common court, and were provided with a gallery running between, from which one could enter any of the halls. There were separate rooms for men and women, medical and surgical patients, for soldiers, maternity cases, and contagious diseases. There was no discrimination made in admission, although the subjects of His Majesty had the preference. A special bed was provided for each patient, with white linen, a straw bed, mattress and one woolen cover, beside special hospital clothes. (At that time very few Germans were accustomed to the English habit of sleeping on mattresses.) The sick wards had a chimney place for ventilation and were fumigated every two hours. The *personel* of the administration consisted of an inspector, a sworn scribe, a house steward and several waiters and waitresses, two of whom served in each hall; special women attended to the cleaning of the basins. Under the supervision of the Surgeon-General Holtzendorff, Dr. Eller directed the medical department, and the regimental surgeon G. Senff, the surgical department. The pensionary surgeons of the army were ordered to the Charité for practical instruction. As one man alone could not attend to two hundred patients, he was allowed a few under or sub-surgeons, two of whom lived with him in the Charité. He examined the newly arrived patients, conducted the journal and ordered the medicines, which the court apothecaries furnished free (just as for all the royal servants, and the city poor). Eller and Senff came twice a week for visits, to serious cases oftener, and on the other days had reports made to them. If operations were to

be performed, they were previously announced, and the pensionary surgeons and stewards of the garrison gathered in the operating room. The difficult operations Senff performed himself, the pensionary surgeon did the simpler ones under his direction, and one of the under-surgeons had to watch beside the patient, regularly for the first nights. Professor Buddens conducted the directions. Great stress was laid upon the care of the soul, since those first received into the Charité were "a brood of dissolute sinners who had for the most part forgotten God and honor." There were daily lessons by the bedsides, and a sermon on Sunday morning. Not satisfied with this, the clergy examined the older people twice a week, which was very uncomfortable for them, since they knew little of the teachings of religion, and manifested very little curiosity to make themselves better acquainted with them. This catechism was kept in store for Sunday afternoon after the service, and once again gone through. The capacity of the Charité was increased in the following years through generous gifts: The General Field-Marshall von Wartensleben presented a large field lying next to the hospital, and this was converted into a garden, the General Field-Marshall von Arnim 1,000 thalers, a pious nobleman 5,550 thalers, and so on. They built in one wing a third story for contagious diseases, more domestic buildings, stabling for cattle for the shambles, and a brewery, and projected a chapel and a botanical garden (Eller *Med. and Chir. Anmerk.*, 1730). Under Frederick II. there was a new enlargement, and the new building was completed in 1736. The insanity ward was also added. After Eller's death Schoarschmidt became director of the medical department, but he was dismissed by a cabinet order in 1744, and replaced by Muzell, who officiated as director for thirty years. His son succeeded him, then Selle, and in the year 1800 Hufeland was called from Jena as body physician and first physician of the Charité. When Senff died in 1737, the regimental surgeon Neubauer received the place of directing surgeon and obstetrician; after him Professor Pallas served for twenty years, then Henckel in 1770, Voitus in 1779, Mursinna in 1787. In 1816 Rust assisted Mursinna, on account of his age. Along with the first physicians, officiated so-called second directing physicians and surgeons, who lived in the Charité. The "operator and chief surgeon in the Maison de Charité," made semi-weekly visits, examined the surgical patients, dictated his orders to the pensionary surgeon had the patients bandaged in his presence by the pensionary surgeon and the hospital stewards. In all important operations and for internal treatment he had to consult the physician. He performed the operations himself and could not trust them to an unskilled pensionary surgeon; besides he treated the maternity cases. The second directing surgeon took the place of the first in his absence, consulted with him concerning all important cases and treated them according to the method mutually agreed upon. Of the pensionary and staff surgeons, one was assigned to the medical, another tothe surgical departments, a third to the maternity ward and the venereal cases, and a fourth to the insane ward and the patients with skin diseases (1799). They had special supervision of the nursing, medicines, diet and the writing of the history of the cases. Among them were assistant surgeons who every two or three months alternated in the main departments, so that in the course of a year they had filled most of the positions. They saw the patients allotted to them four or five times a day, watched by them at night when it was necessary and looked after the proper distribution of food, but their prescriptions must be inspected by the pensionary surgeon.

One would expect that the Charité, as the largest hospital at the capital, would be a model for all the others in the country. But how dark is the picture which the directing surgeon, E. Horn, draws of it in 1806, when he makes a public report of his twelve years' service! Dirt and stench that defy description, prevailed then everywhere in the hospital. Instead of bathing the patients when they were received they were left in their filthy rags and packed away in dirty beds. The bed-linen was left dirty for a whole week and it was washed so badly that the clean linen was scarcely to be distinguished from that which had been used; there were no baths. Under almost all the beds stood basins which smelled as foul as the wooden buckets used for carrying refuse. Vermin bred in the straw beds and the feather covers, soaked with perspiration and urine, infected everything around. The bedsteads, which they had not thought it necessary to paint, became loose and fell apart, and they were breeding places for bedbugs. Wherever one looked, whatever he touched, wherever he stepped, everywhere indescribable filth. Nearly all the windows were closed fast for fear of a draft and colds. The food was so bad that the waiters made a business in the institution of selling sausage, cheese and brandy to the patients. Nowhere was the attendance worse than here; the people understood nothing and were very much underpaid—one thaler a month and no supper in the hospital. Nothing can enable the imagination to picture the results of this wretched management. The hospital was crowded with patients. Although the space sufficed for at the most 750 patients, 800 or 900 were taken in, so that patients with contagious diseases and those in delirium lay among the convalescents. For years hospital fever infested the place and carried off many, even patients not seriously ill, attendants and assistant surgeons. If you ask the causes which made the Charité a veritable den of murder, you find that they lay chiefly in the defective administration and the disadvantages of war time. It was a misfortune that the physicians were entirely excluded from the administration of the hospital. The chief inspector reigned alone; he regulated, without reference to the physician, the temperature of the wards, the change of linen, the food, the lighting and cleaning of the rooms, and so forth. According to his principle, the less expense and labor the better, and dirt and vermin got the upper hand from day to day. Fuel was either denied or supplied so scantily that one could hardly warm a poultice with it. Horn requested some wood; when he received none he looked about for it; after a while he got some and begged earnestly for more; all this depended upon the caprice of the administration. The light was so bad that even in 1815 a suicide could occur in the presence of fifteen patients, which with proper lighting could probably have been prevented. The other reason for this great distress was the lack of money during the war, in which the French cleaned out the Charité as far as possible and converted it into a military hospital. Even before 1806 the allowance of the King did not suffice, and from 1806 to 1814 it was discontinued entirely. They seized its capital and increased the debts. In the year 1810 the purveyor of the Charité had a claim of 50,000 thalers,

and the interest of 5,177 thalers must be collected by suit at law in a court of the second resort. Even after the restoration of peace the stringency continued insomuch that the purveyor was informed of the state of affairs and the authorities were notified that the supplies would last only one day longer. Under these circumstances the complaints of the physicians were lost in the air. It was due to the extraordinary efforts of Horn and Hufeland that greater cleanliness was maintained in the Charité and that the other unhealthy conditions were bettered.

In the second half of the century all eyes looked to the newly founded *General Hospital* of Vienna. In the time of Maria Theresa Vienna possessed several small hospitals and poorhouses. Among others the St. John's Hospital, the Imperial Hospital, the Burgher Hospital and St. Mark's Hospital (for syphilis and maternity cases), the Beckenhäusel (a refuge for the poor), the Spanish Hospital and the Triple Hospital. In the the last was the medico-surgical school created by Van Swieten. Emperor Joseph II. had convinced himself by repeated observations of his own of the error of maintaining those small pest hospitals which regularly cared for about two thousand patients and poor, and had a yearly income of about 200,000 guilders. He closed these and in place of them established a large general hospital at great expense. Vienna letters of that time relate that "everyone is excited over the important change, and the Vienna physicians are stirred up because the end is made of many old institutions." The Emperor was generous enough not to expend any public money but defrayed all expense from his own purse (aside from the revenues of the disestablished institutions). They used the old buildings of the former poorhouse, making such alterations as were necessary, and built two additional two-story buildings, so that the whole included beside the regular hospital, a maternity hospital, a house of refuge, a home for incurables and a foundling house. The hospital was opened Aug. 16, 1784. The principal entrance was adorned with the inscription in gold: *Saluti et Solatio Ægrorum Josephus Secundus semper Augustus.* Through the gate we entered into the first court, over six hundred feet long, which was laid out with avenues, trees and fountains. Behind this were six more courts, smaller but just as elaborate. The whole hospital would accommodate 2,000 patients (the German periodicals said 6,000), and for medical and surgical patients had 86 rooms, of which in the first year 72 were occupied; 34 for men and 28 for women. The former contained at that time 812 beds, the latter 676, a total of 1,488. The ophthalmic and venereal patients were allotted to the surgical department. Most of the rooms contained 20 beds, some 40, and the largest rooms, for venereal patients, contained 90 beds. All the rooms were 14 feet high and 26 feet wide, and had windows on both sides, under which stood the beds 3 feet apart. The ventilation was so arranged that when the windows, 6 or 8 feet above the floor, were opened upon both sides of the room the air passed through without harming the patients. Beside this there were air-holes in the wall through which pipes led to the open air, also in the floor under the beds and under the stoves. The greatest cleanliness prevailed everywhere to a degree which could not be excelled or surpassed in a princely palace; beds and linen were frequently changed and washed. Every patient had his own bed; beside it stood a small table with drinking vessels, a metal vessel for refuse and a wineglass. Over the table hung a black tablet upon which were noted the number of the room and the bed, the name of the patient, the day of his entrance, the medicine, diet and the most important symptoms. They divided the patients into four classes. Those in the first class paid one guilder daily and received a separate room, board, medicines, treatment and a special attendant. The bed consisted of a horse-hair mattress, a straw bed, two fine sheets and several cushions. In the second class they paid half a guilder and received the same as those in the first class, only they had no special attendance and fewer dainties in food. The third class, made up principally of servants, were charged ten kreuzer, while the fourth class consisted of paupers taken gratis. The hospital furnished clothing and linen. In the acceptance of patients there was no discrimination, either in respect to nativity or religion, only the hopeless cases were sent to the house for incurables. Six physicians and six surgeons alternated daily to take care of the incoming patients. The body surgeon, Quarin, who had originated the plan of the hospital, acted as director and was accountable only to the Emperor. The medical patients were under four physicians-in-charge, so-called *primarii*, of whom two had free residence in the house; under these were fifteen assistant physicians. Of the five over-surgeons, who supervised the surgical department, the chief must be called to counsel in all important cases and large operations. He visited all the surgical patients daily, without treating them officially, and had the oversight of instruments and bandages. Beside these there were seven other surgeons whose position was similar to that of the assistant physicians, beside ten assistants and a number of practitioners. The surgical cases which came to light in the medical department were taken care of by one of the over-surgeons, while on the other hand the important internal diseases which appeared in the surgical department were taken care of by one of the first physicians. The hours for visiting patients in summer was from 7 to 8 in the morning, in winter from 8 to 9, and afternoon, from 3 to 4. Every twenty patients were served by three attendants, who received 9 guilders a month and lived at their own expense. The economy of the institution, the inventry and property of the patients were looked after by four stewards with twelve assistants; at the same time all the food, which in general was very good and appetizing, was carefully contracted for by three cooks. The hospital had an apothecary of its own, the equipment of which had cost 20,000 guilders; this had four dispensing tables for one apothecary and six assistants, also a laboratory in which seven persons worked. They held a polyclinic every morning where one physician and one surgeon presided, gratis. The attendance was so great that in the first half year 16,659 patients received free medicine and within three years the total number amounted to 116,041. As to the salaries of the hospital physicians, the director received 3,000 guilders, the primarii 600 to 1,000 guilders, the chief over-surgeon 1,500 guilders, the other over-surgeons 800, the assistant physicians 300 guilders and the certain practitioners from 100 to 200 guilders. Most of these had free residence in the hospital. (Oestreichische Gesetze in John's Lexicon; München, Scherf's *Archiv d. med. Polizei*, v, 1786.) In the year 1874 the director of this greatest European hospital in which 20,000 patients annually were treated, who was

required to superintend the university clinics and twenty-seven departments and to command a force of 220 men, received the same salary as that which Joseph II. had paid to the director one hundred years before!

With the Berlin Charité and the Vienna General Hospital, which included a beautiful hospital in Prague, founded by Joseph II., we exhaust the list of the most important hospitals in Germany. It is only in the last decade that the number of hospitals has increased in a gratifying way. The people grew ever more conscious of the fact that their value lay not alone in the help which they extended to the sick, but that science was indebted to them for the greatest part of its riches. They improved the old hospitals; new ones were erected by Joseph II. in all the great garrison cities, or the empty monasteries were used for that purpose. Dresden obtained in 1751 a small surgical hospital, which in 1778 was joined to the collegium medico-chirurgicum. Frankfurt-on-the-Main owed its Burgher Hospital to the well known philanthropy of one of its physicians, Dr. John Christian Senkenberg, who in 1770 presented to the city his whole very considerable fortune. Out of this they built the hospital, an anatomic amphitheater, a botanic garden and a chemic laboratory. In Brunswick a hospital with fifty beds was established in 1780. But most of the German universities as yet possessed no hospital. What then was to be expected in the way of achievement from professors of surgical training of the young, or of progress in surgery, when the patients were lacking, and thus the science deprived of its most important and vital nerve? Göttingen existed as a university forty-three years before it obtained a small hospital with fifteen beds (1780), although many years previous A. G. Richter, at that time professor, had pointed out that without a hospital neither medicine nor surgery could truly thrive. In Würzburg these conditions were reversed; there the bishop-prince Julius first founded the Julius Hospital for paupers, sick and orphans (1576), and afterward founded Julius University in 1582. But true appreciation of the hospital for the purpose of instruction did not begin until the end of the eighteenth century. Julius Hospital received about four hundred patients, when, according to one Brande (1704), a large new building had been erected. Beside this there was in Würzburg (1786) a hospital for journeymen mechanics and apprentices, erected by the hat-maker, Heydenreich, out of voluntary contributions. Kiel, which was raised to a university in the year 1665, obtained a hospital over a hundred years later, built by contributions, as a result of the activity of Professor Weber (1787). In Halle University also a hundred years passed before they obtained, in 1806, and at the suggestion of Reil, a hospital of twelve beds, which was erected at a cost of 1,800 thalers. In the last two decades of the century they began to establish special schools for the training of nurses. Dr. May founded such a one in 1782, in Mannheim, for twelve nurses, and a few years later there arose similar schools in Carlsruhe, Magdeburg, and still later in the Berlin Charité.

If we look at the hospitals in foreign countries in the eightieth year of the century, we find that Germany was far behind England and France, where almost every city of any considerable size had its hospital and possibly also a house of refuge, a maternity hospital and a smallpox hospital. In no country were the sick better cared for than in England. There nearly all institutions for the public health were founded and maintained through the private benevolence of certain rich citizens, and no city in Europe was richer in charitable institutions than England's capital. The hospitals in London in 1784, twenty-seven in number, had an excellent internal management, which was nearly everywhere the same. The oldest and best was *St. Bartholomew's Hospital* and also one of the most beautiful buildings in London. Founded in the year 1102 by Rayhere, the prior of St. Bartholomew, little by little it fell into decay, and was newly organized at the dissolution of the monasteries by Henry VIII. Harvey, the discoverer of the circulation of the blood, had worked there. The new buildings, erected in 1730, formed a large quadrangle. Two wings contained each sixteen halls, twelve of which were continuously in use; the third wing was reserved for sick women, the fourth for the members of the household and service. In the hospital, where the greatest cleanliness prevailed, there were almost always over four hundred patients, among them one hundred surgical cases, ten to fourteen of whom lay in each hall, about six feet apart. Great chimney places served for ventilation, and all the doors stood open, except in severely cold weather. The water was led into the house through pipes and was dispensed to the patients in leather pitchers. The meager equipment of the apothecary, which consisted of scarcely a dozen bottles and glasses was very striking in comparison with that in Germany. They usually had so-called sisters, two to four, for each room, who received a moderate salary. Three physicians and three surgeons, with as many assistants, treated the patients. They made visits three times a week and alternated weekly, so that within that time each received the new patients for his department. So it happened that the surgical patients were often unevenly alloted and one surgeon had thirty while another had fifty. Admittance was possible at all times, but Wednesday was the regularly appointed day. Upon his entrance the patient paid 24 shillings, or gave a surety for the possible burial expenses; at his departure he received the money back. The surgeons consulted mutually over important cases and each operated upon his own patients, with the understanding that no one of them should specialize in a certain line of operations. Pott, who was assisted by Sharp and Earle, did most of the ophthalmic and almost all the lithotomic operations in the hospital. There was a great deal of operating, mostly done on Saturdays. Else operated in St. Thomas Hospital and Chandler performed many lithotomic operations. Guy's Hospital was founded in 1722 by the book-dealer Guy, by which act he deprived his housekeeper, whom he had wished to marry, of 240,000 pounds sterling. There Lucas, Warner and Cooper had charge of the surgical cases. The London Hospital, founded in 1758, was mostly filled with sailors and therefore had abundant wounds and operations. There were also a large number of patients in St. George's Hospital (founded in 1773), where, after 1786, John Hunter worked, under whose hands came very many patients with aneurysm; together with him worked his brother-in-law, Ev. Home, and Hawkins. Of these four London hospitals the St. Thomas Hospital contained 500 beds, the others from 300 to 400, of which one-third were required by the surgical patients. The Westminster Hospital (founded 1719)

was maintained entirely by the oratorios, which all the musicians in London together, at least 800, gave every year in Westminster Abbey, the admission being one guinea. For this reason, sick musicians enjoyed the preference of admission into the hospital. The Lock Hospital, founded by Bromfield and others (1746), received only syphilis patients; according to its by-laws it would receive each patient but once. There were already in London at that time, special hospitals for certain diseases, as for smallpox and insanity. Two houses of correction, each accommodating 300 patients; among these was the Bethlehem Hospital (founded in 1553) in which prevailed, until 1770, the abominable custom of exhibiting to the public for a fee of one shilling, the half naked patients chained to the wall; there was also St. Luke's Hospital. London possessed also a Magdalen Hospital as an asylum for penitent fallen women, and several maternity hospitals and charitable institutions (infirmaries) where physicians, surgeons and apothecaries twice a week dispensed their counsel and medicines gratuitously to the poor. A private citizen provided a fund, the interest of which was devoted to caring for twelve cancer patients. There was as yet no hospital for ophthalmic patients; there was, indeed, three miles away in Kentishtown, a beautiful building with the inscription, "Infirmary for Blind People," but there were no patients there. Greenwich and Chelsea had Invalid Houses, the latter accommodating 2,000 sailors. In all the London hospitals the visits were made at eleven o'clock, and the operations were performed at twelve o'clock, in a special room which had most light from above. As to the provincial towns, Portsmouth had a large hospital, which was situated by itself upon a large peninsula, and had 120 sick rooms with 2,100 beds. There principally sailors and patients with scurvy, also from 500 to 700 surgical cases were treated. Edinburgh possessed a very beautiful hospital for 200 patients. In this twenty-four surgeons alternated every month, two serving at a time, and performing the operations in a great amphitheater. But no operation could be undertaken without the approval of four surgeons; whenever an operation had been postponed, a notice must be posted at the gate of the hospital a day in advance.

Entrance to the London hospitals was made difficult to foreigners by a high admission fee. Once only would they admit a stranger with a letter of recommendation; but the second time, the porter stopped him at the entrance of the operating room, if he had not been enrolled. Most foreigners, for this reason, saw only one or two operations, went through the hospitals and contented themselves with buying a few instruments, attended one lecture and took their departure. On this account many foreigners went to Edinburgh, where living and lectures were very much cheaper and the admission to the hospitals was free. (J. Hunczovsky, "Med. chir. Beobachtungen auf seinen Reisen durch England und Frankreich, besonders über die Spitäler," Viennos, 1783. Briefe aus London in Baldinger's *Med. Journ.* 15 Stück, 1787.)

If we turn to France before the revolution, we find in Paris the imposing number of fifty-one hospitals, among them twenty-two for the sick, eighteen for incurables and chronic cases, two for soldiers and the rest for the aged and orphans. Most of the hospitals were very old and had been founded by some monastic order, therefore they were almost always situated in monasteries or near the churches. The archbishop with the general-procurator of the assembly had supervision of them; beside, each separate hospital was administered by priests or citizens of repute. Within, the monks and nuns ruled to such an extent that, to the great detriment of the patients, the physicians were almost wholly excluded from the administration; indeed they had no power, and must beg the most necessary medicines as a favor from a nun. It was so difficult to prevail against the monastic rule that although the administration was made acquainted, through several decades, of the unfortunate condition of the maternity cases in the Hôtel Dieu, every improvement was thwarted by a crowd of cabalists. While in the civil hospitals the greatest abuses were found the administration of the military hospitals, where the physicians and the laity alone were in power, was excellent. At the outbreak of the revolution it was even worse. The priests no longer begged for the hospitals, so that a large part of their revenues was lost, and the rich people concealed their money. When the opportunity came priests and nuns were thrust out of the hospitals, but their successors discharged their duties so badly, that finally a veritable anarchy arose in all branches of the administration. In 1772 when a part of the Hôtel Dieu was burned, a reform was earnestly considered. Many propositions were made, until at last in the year 1787, the conclusion was reached to build four new hospitals. Within a short time two million livres were collected through subscriptions, and over ten millions subscribed, but the royal treasury swallowed up the money, and built nothing. Under these conditions the constitutional Convention came on and while it improved the administration in many respects, and provided certain revenues, it left everything else to the legislative assembly. When all these properties were declared to belong to the nation the hospitals were at one blow robbed of their means and left to their fate. The revolution broke forth. The confusion in the hospitals mounted to the highest, but nevertheless the patients during the reign of terror never suffered want. The state was generous to their needs, and their fare was better than that in the families of the poorer citizens. There was never a time when the patients had less than eight ounces of bread, an eighth of a pound of meat and a quarter of a bottle of wine. On the other hand the stringency during the summer of 1797 became worse than ever; once the treasury of one hospital contained only 36 livres.

(To be continued.)

PECULIARITIES OF THE SURGICAL DISEASES AND INJURIES OF THE NECK.

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(Continued from page 602.)

TORTICOLLIS.

Torticollis, also called wry-neck, is a deformity of the head and neck in which the face is turned upward and to one side. It is not a very rare disease. The causes are numerous and will be studied with the forms, varieties and complications. The pathologic lesions vary also with the causes. The symptoms are the deviations mentioned above, accompanied by other lesions according to the forms and varieties. There

is also atrophy of the face and cranium of the affected side; sometimes strabismus, impairment of vision, dysphagia. There are usually no general symptoms. The course, duration, diagnosis, prognosis and treatment all vary with the forms, varieties and complications.

Acute, transient or rheumatic torticollis is that due to cold; it presents no cranio-facial deformity; it may affect the sterno-mastoid, the trapezius, or all the muscles of one side. The peculiar point in the treatment is to immobilize the head in a liquid glass bandage for a few days.

Chronic torticollis comprises all the following forms and varieties.

Intermittent or spasmodic torticollis is characterized by a sort of convulsive to and fro movement of the head with cessation for short intervals or during sleep. The name is a bad one, because there is no spasm, but simply a loss of dynamic action, a lack of muscular synergy. The head is easily restored to its proper position, but it returns to the vicious one; the muscles behind and in front are of the same consistency on both sides; the contractions are clonic spasms returning by attacks more or less frequent, followed sometimes by a more or less lasting contraction; this may become permanent; it is then called tonico-clonic. The spasms are limited to the sterno-mastoid, trapezius and splenius; when the patient is lying down with the head flat there is no deviation; when sitting up, the head loses its equilibrium; it is first inclined laterally, and then in rotation; the movements are slow, gradual, without jerks. The head is easily straightened by an assistant, but it falls back immediately when the support is withdrawn. Electricity and massage are the most usual means employed, together with a collar apparatus; stretching or section of the spinal nerve has been done in one case with only temporary improvement.

Permanent torticollis may be cutaneous and cicatricial, muscular or articular or osseous; the muscular may affect the lateral muscles (sterno-mastoid, platysma, scalenes), or the posterior muscles (trapezius, rhomboid); the latter will be described with the diseases of the posterior region of the neck. Torticollis may be hysteric or may be simulated or affected (dude's torticollis). Torticollis due to affections of the sterno-mastoid is by far the most frequent; it may be due to retraction or to paralysis.

Cutaneous or cicatricial torticollis is easily recognized; the head is not twisted as in the regular torticollis.

In articular or osseous torticollis due to tuberculous osteo-arthritis, and in that due to tumors, the head can not be budged from its absolute immobility on the vertebral column; the head is not twisted as in the real torticollis.

In torticollis by contraction the head can be straightened; the muscle retains its shape and its contractility; it is the trapezius that is most commonly affected.

In torticollis by retraction the head can not be thoroughly straightened, and there is the persistence of a hard stretched muscular cord. Sometimes it requires the administration of an anesthetic to determine those points, and whether it is the sterno-mastoid or the trapezius which is affected or the deep muscles. Torticollis by retraction of the sterno-mastoid is also called torticollis by contraction, meaning a permanent strong contraction and retraction of the muscle. It is the most common; it is characterized by a hard stretched cord along the course of the sterno-mastoid, especially when the head is rotated in a proper manner. That it may be congenital is recognized, but it is rare; it is sometimes called obstetric when it is thought to be due to the traumatism produced by the forceps; it may be due to myositis syphilitica or to a gumma. It is called physiologic when it is due to vicious attitudes, voluntary or involuntary; or it may be due to disease of the central nervous system or to the nerves of the muscle. Or it is called ocular when induced by defects of vision, *i. e.*, headache, diplopia, astigmatism, amblyopia. It is sterno-clavicular torticollis when it affects only that head of the muscle, or double-headed when it affects the two heads; the sternal head is the most commonly affected. The pathologic lesions are a fibrous degeneration or transformation of the muscle; it usually occupies the lower two-thirds; the right side is more frequently affected. Cranio-facial atrophy is due to the defective nutrition of the parts.

The prognosis is that the deformity always tends to increase.

The treatment consists in performing tenotomy, subcutaneously or openly, of the affected head or of the two heads; the best time to operate is not before the third or fourth year. The disease has no influence on the development of the skeleton up to that age; after the tenotomy a proper collar apparatus, with or without suspension, must be used.

In permanent paralytic torticollis the head is inclined to the opposite side of the hemiplegia, due to the action of the sterno-mastoid of the opposite side; it may in the course of time bring on a retraction of that muscle. No other form of paralytic torticollis is recognized by most writers. The head can be straightened, and remains so only as long as it is supported.

The treatment presents nothing special except to apply also a supporting apparatus.

Torticollis of the platysma has been observed, also of the scaleni. Hysteric torticollis is diagnosed by anesthesia. Also the simulated torticollis and the affected torticollis of the dudes; in these last cases the two sterno-mastoids are simultaneously contracted.

Induration of the sterno-mastoid in the newborn will be described with hematomata. Induration of the muscles in adults is syphilitic; it may be diffused sclero-myositis; it may occupy the whole muscle, which is transformed into a cord, or it may be localized in one spot.

Congestion or hyperemia of the region of the sterno-mastoid presents no peculiarity.

Inflammations of the side of the neck are comparatively frequent. They present peculiarities in almost all of the tissues of the region.

Inflammations of the skin and subcutaneous connective tissue, however, present no peculiarities not already described with the neck in general.

The external jugular vein is sometimes affected with phlebitis, recognizable by the long hard cord on its course, with pain, etc. The sterno-mastoid muscle itself is seldom inflamed (sterno-mastoid myositis) except in acute rheumatic torticollis due to cold or sprains of the muscle; the muscle may be destroyed in cases of abscess developed in the sheath; when the muscle itself is inflamed and suppurates, it is in one of the general infectious diseases.

Inflammations in the sheath of the sterno-mastoid are common; sometimes they begin in one of the

small lymph-nodes situated in the sheath itself; when originating from these, it is remarkable that the inflammation and the pus that usually follows it remain limited to the sheath very strictly and descend toward the lower third of it, near the clavicular attachment, where they become superficial. This inflammation leaves after it a stiffness and a shortening of the muscle.

Acute cervical adenitis and adeno-cellulitis or adenophlegmons are the most common of all the forms of inflammation of the neck.

Diffuse cellulitis is usually due to the fact that although probably originating in the glands from some infectious products, in angina, scarlatina, etc., conveyed from the face, neck, mouth, pharynx, esophagus, larynx or trachea, it quickly spreads into the surrounding connective tissue and form those grave cases of diffuse cellulitis which spread all around, and became very extensive, already described above, where the pus may burrow in all directions as also said above. Phlebitis of the internal jugular vein is not very common; it is usually due to infection from the interior cavities or to metastasis. It is accompanied with great pain and swelling along the course of the vein; it is often complicated with phlebitis of the lateral sinus and with cerebral symptoms. It is diagnosed with the exploring needle; it is of the utmost importance to diagnose early and to evacuate early by incision or dilatation on a guide.

Arteritis presents no peculiarity.

Neuritis of the nerves of the region are most uncommon.

Chronic inflammation of the glands or chronic cervical adenitis is most common; it is usually strumous or tuberculous. Chronic inflammation of the other tissues of the region is most rare.

Gangrene presents no peculiarity.

Ulcers are usually strumous or tuberculous or cancerous from the ulceration of the lymphatic glands; they leave ugly scars.

Fistulæ of the region are sometimes congenital branchial; but they almost always are due to the tuberculous glands.

Tumors of the lateral region may be pharyngocele, esophagocele, laryngocele, tracheocele and emphysema; they present nothing peculiar here.

Liquid tumors containing blood are all represented here. Hematoma due to contusions, to ruptures of the sterno-mastoid, to narrow penetrating wounds of the vessels, when they are persistent should be aspirated but not until full time has been allowed for resorption. Varix or dilatation of the external jugular vein is usually due to heart disease; it requires no treatment. Varix or dilatation of the internal jugular also.

Angioma of the neck is sometimes called sanguineous cyst. It must not be confounded with a cyst in which hemorrhages have taken place or have opened into a cavity; they may be superficial or deep or cavernous. Angioma sometimes presents a single vein opening into the jugular by one or several orifices; sometimes several angiomata open into the jugular. The neck is a special seat of ampullar venous dilatations, forming cavities in an erectile tissue with narrow spaces. Angioma is often completely reducible. In operating it is advisable to place a ligature on the large vessels as soon as possible before extirpating the tumor, thereby diminishing very much the hemorrhage during the removal and facilitating the removal. A sanguineous cyst is sometimes due to a serous cyst with a hemorrhage in its cavity. A sanguineous cyst is also a cyst which originally was serous and has opened into a vessel, usually a vein. Sometimes a sanguineous cyst is found completely isolated and closed on the course of absent veins; other sanguineous cysts are either an angioma developed in the walls of the jugular or due to venous dilatations or varices of the jugular. We do not consider as sanguineous cysts those cysts formed by an encysted hematoma, by a sarcoma with a cystic degeneration and hemorrhage in its cavity, nor of central cysts developed in the lymphatic glands, or hemorrhage in cystic tumors or serous bursæ.

Aneurysms of the neck may affect the three carotids, or their branches, *i. e.*, the superior thyroid, lingual and facial; but these are rare. They may also spring from the first and second portions of the subclavian or its branches, especially the vertebral, then the inferior thyroid, deep cervical; but the two last are most rare.

Clinically and practically the aneurysms of the neck form two groups: The aneurysm of the root, *i. e*, situated low down nearer the clavicle and sternum; they should be treated as detailed above in the suprahyoid region. The following are the diagnostic signs of the seat of the aneurysm: Increase in the retardation of the right radial pulse is a constant sign of innominate aneurysm. In aneurysm of the ascending arch the inequality of amplitude of the two radial pulses is frequent. It exists only on the right side in innominate aneurysm. The increased retardation of the pulse exists simultaneously in the radial in subclavian aneurysms. Increased retardation of the temporal pulse characterizes carotid aneurysms. We should not take an arterial dilatation of the whole artery for an aneurysm. Spontaneous aneurysm is exceptional.

The aneurysms above the root are those where there is room to penetrate between the tumor and the arch. They are aneurysms of the carotids and branches and of the vertebral.

The aneurysms of the carotids are seldom traumatic; however, they may be the result of contusions. The common carotid is more frequently affected (18 per cent.); it is comparatively frequent in females, more so surely than the other aneurysms; it is also more common in young subjects than the aneurysms of other arteries. These aneurysms may be confounded with vascular or aneurismal goitres, pulsatile sanguineous cysts of the thyroid when they exist on the course of the carotids; also with pulsatile encephaloid; also with other tumors of the neck situated on the course of these carotids.

The treatment of aneurysms of the carotids by the methods of Anel, gave 22 per cent. mortality; the special complications being cerebral anemia, thrombosis, softening, ocular symptoms, laryngeal and pulmonary troubles. Incision of the sac without previous ligation is most dangerous. Ligations below and then incision of the sac gave 100 per cent. cures. In regard to ligation both below and above end then incising the sac, we have no data, because usually after ligating below and incising, the upper end is also secured. Extirpation has never been done on this artery; but it should be unless the sac be very large and closely adherent to the important vessels and nerves.

Aneurysms of the external carotid have been most

frequently treated by ligation of the common carotid with twelve cases and two deaths. The external carotid itself has been ligated in three cases, with one death and one return. The sac has been extirpated once with success. Aneurysms of the internal carotid, *i. e.*, of the extra-cranial portion, often project into the pharynx; ligation has been performed seven times with only one recovery.

Arterio-venous or jugulo-carotid aneurysms require no treatment unless they grow and cause grave pressure symptoms. Then the artery and the vein should each be tied above and below and the sac incised, or better, extirpated, because if left in place it may still cause trouble by pressure symptoms. This has been done in this region. Arterio-venous aneurysm of the external carotid present three cases on record; in two the ligature was applied above and below with one death. Arterio-venous aneurysms of the internal carotid, *i. e.*, the extra-cranial portion, have two cases on record, no operation was performed; both died.

The diagnosis of the affected artery in cervical aneurysms, etc., is often most difficult. Clinically and practically the diagnosis is made by operation. A provisional ligature should be applied below the tumor. When this stops the pulsations another ligature should be placed above; if this is not possible the ligature below should be tightened, the sac incised, the upper end of the artery secured and the bleeding points, if any, clamped and the sac extirpated if not too closely adherent to the important vessels and nerves. When, after placing the loop ligature, the pulsations are not affected, it is because the wrong artery is attacked; the loop should still be kept in place and the vertebral should have a loop ligature under it, when the pulsations will stop; then another ligature should be placed above, if possible, and as described for the carotid. Lymphangioma of the region presents no peculiarities.

Serous congenital cysts of the neck are most frequently situated in the lateral region of the neck; they are usually seen at birth; the multilocular cysts specially occupy this lateral region, whereas the unilateral occupy more frequently the median line, but there are many exceptions. Serous acquired or postnatal cysts of this region are really but congenital cysts. We will only mention the following, which are not truly cysts: Sanguineous cysts, due to contusions, which is an hematoma; sanguineous cysts due to sarcoma with an internal hemorrhage. Mucous, mucoid, dermoid cysts are all congenital cysts and present no peculiarities not already mentioned with the cysts of the neck in general. Hydatid cysts of this region are very rare; sixteen cases in all. Cystic degeneration of glands and tumors are not described as cysts. Purulent cysts or chronic abscesses or abscesses by congestion are sometimes observed in the sheath or the sterno-mastoid. We do not consider the softened tuberculous glands as cysts. Chronic abscesses are most frequently situated in the sheath of the large vessels, whence the pus may pass down into the mediastinum.

The solid tumors of the lateral region are: Hematoma, clotted or solidified, from contusion. It has been observed, also, from rupture of muscles and injuries of blood vessels. Senn had a most interesting case of persistent solidified aneurysm of the common carotid. Hematoma of the sterno-mastoid in the new-born is most remarkable and unique. It usually appears after birth; it is more frequently on the right, it occupies the body of the sterno-mastoid, partially or totally forming a part of its substance; it is firm, elastic; it is oval; it is stationary; there is no pain except on pressure; the head is inclined as in torticollis; there is no tendency to grow nor to suppurate; it usually disappears by resolution in a few weeks or months. It is thought to be due to obstetric traumatism or a malformation; it is common after breech presentation when traction has been made to extract the head; it may cause a permanent torticollis. It must not be confounded with enlarged glands.

Induration of the sterno-mastoid in adults is syphilitic; it may be a diffused sclero-myositis; it may occupy the whole muscle, which is transformed into a cord, or it may be localized in one spot.

Gummata of the sterno-mastoid are found usually at the inferior insertion of the muscle; they may attain the size of an orange. This muscle is a point of election of gummata; they develop rapidly, in four weeks, without traumatism and without trace of pain. One case of hereditary syphilis of the sterno-mastoid is reported.

In connection with adenomata of the lateral region we will note here that tumors of the lateral region of the neck are usually glandular; a median tumor is most commonly connected with the thyroid body, larynx or trachea. Simple adenoma or lymphadenoma or pure hypertrophy of the gland is rare. In some cases of anemia there are peculiar hard glands of stony hardness, commonly unilateral, usually affecting the whole set of the glands (Miller). Adenoma of Hodgkin's disease, or adenia or adenoma of leucocythemia very commonly begins by the neck; in leucocythemia there is increase of white blood corpuscles; in adenia there is no increase. Strumous adenoma is very common in this region. Senile scrofula is represented by strumous adenomata in old people. Tuberculous adenoma is most common here; it is almost a seat of predilection. Syphilitic adenomas are very frequent; also, next to the nucha it is the part of the body must frequently presenting the symptoms of chronic syphilis; the glands are usually painless, of the size of a hazel nut, indurated; they never suppurate. Adenoma of glanders presents no peculiarities. Lipoma in this region presents no peculiarity not already mentioned in the description of the diseases of the neck in general; however, we must bear in mind that they often adhere to the vessels and bones. Fibroma is rare. Myxoma and myoma present no peculiarities. Neuromata of superficial nerves are cutaneous, plexiform; they are common in the neck, but not more frequently so in the lateral region. Chondroma is more commonly found as originating in the glands; they often adhere to the sheath of the vessels and to the bones. Osteoma has not been observed except as a possible calcareous degeneration or ossification of some structures. Encephaloid, melanotic, colloid or pulsating sarcoma, epithelioma, carcinoma and scirrhus are almost always secondary to such diseases of the head, face, pharynx, esophagus, larynx or trachea.

Tumors special to the region.—The hematoma of the new-born is the only tumor special to this region.

Surgical operations of the lateral region of the neck or region of the sterno-mastoid and of the carotids. The only operation requiring peculiar mention is that of tenotomy for torticollis, when the innominate vein may be wounded.

(To be concluded next week.)

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Regular meeting held March 12, 1897, at the Leland Hotel.

Dr. W. X. SUDDUTH in the chair.

The subject for discussion was

AUTO-INTOXICATION IN ITS MEDICAL AND SURGICAL RELATIONS.

THE CHAIRMAN said: Auto-intoxication, *i. e.*, self-poisoning, may arise from perverted cell metabolism or through deficient elimination of the ordinary waste products of cell katabolism produced in the regular course of functional activity, but which become deleterious by reason of their retention within the organism. Both conditions may be truly classed as auto-intoxications if we consider the body as a unit, a perfected whole, made up of many parts all working together for the general good. An organ is a complicated structure and its functions are simply the sum total of the functions of the individual cells that go to make up the organ. It is therefore a matter of indifference, pathologically speaking, whether the poison is produced by the cells of the particular organ that is affected by the product or whether it is evolved by the cells in some other portion, and carried to the part involved by the vascular or lymphatic system. If the poison is produced within the organism by reason of some fault of the organism itself, or if the ordinary waste products of the body, which are invariably poisonous to the body producing them when retained, are not quickly removed, the result is a true auto-intoxication and comes within the scope of this discussion.

The only phase of the question that I desire to present is the auto-intoxications that arise from the poison produced by perverted or excessive emotional activity. From time immemorial it has been known that the emotions, when excessively indulged have a direct action upon secretion. Clinically, we are all familiar with the interference in the normal functional activities of the several organs of the body by excessive grief. The derangements of the stomach and alimentary tract, that produce dyspepsia and faulty assimilation with the consequent long line of disorders, physical and mental, that follow in the train of mal-nutrition, are also well known.

Every mother knows the danger that lies in permitting a child to nurse soon after she has indulged in an uncontrolled fit of anger or suffered a severe fright. The sympathetic diseases that a nursing child has in common with the mother, while not in themselves true auto-intoxications, yet conclusively prove, when related thereto, the effect of toxic agents produced within the body of the mother through the operation of emotional prodigality. It has only been within the last few years, however, that physiologic chemistry has taken up this question and even more recently that psycho-physiologic investigation has demonstrated the nature of these processes. Professor Gates in an elaborate series of experiments has shown that each and every emotion has its own particular secretion which, if retained within the body, produces an auto-intoxication. These psycho-neurotic processes are undoubtedly the source of many of the trophic derangements found in the practice of the nervous specialist. Quite recently the theory has been advanced that insanity is many times the result of auto-intoxications from these products of emotional prodigality, exacerbations of mania frequently having been observed to follow a more or less prolonged period of emotional excitement. Professor Gates' experiments conclusively show that the emotional toxic agent is a constant product and can be extracted from the secretions, sweat, etc., at each successive recurrence of the emotional state in which it has previously been found, and further, that when separated and injected into man or dog, that the special emotional state may be reproduced, thus proving by experiment that there is a characteristic chemical action taking place in the system as the result of excessive emotional indulgence that may be determined by laboratory methods.

The other question, as to whether these products are always toxic in character, depends upon the nature of the emotion producing them, and opens up a field for discussion that transcends the scope of this symposium and will be deferred until some other more favorable time.

DEFINITION OF AUTO-INTOXICATION.

Dr. W. A. EVANS—I have been requested to devote my time to a definition of auto-intoxication. Intoxication comprehends: 1, production of the intoxicants; 2, absorption thereof; 3, reaction thereto. The three are embraced when we speak of auto-intoxication. This is poisoning of an organism with matter produced by itself.

Assimilation or the making of tissue is the passing of the simple into the complex, of stability to instability, with the storing of energy. This instability is a necessity of life. Dis-assimilation, divided into two divisions, death and energy, the last being a modification of death, is the passing of the complex to the simple; the instable to the stable with the liberation of energy.

In the building-up process the unused portions of the absorbed foods may be said with fair propriety to produce auto-intoxication. In the breaking-down process the ash can produce auto-intoxication. So long as these two processes, tissue building and tissue waste, are normal, intoxication can only ensue from faulty action of the destroying organ of which the liver is the chief, or of the eliminating organs of which the kidney is a type. This constitutes then the first group, those due to faulty elimination. It applies to food remnants and to tissue waste, both normal and pathologic.

The second group is due to errors in cell life. It has three sub-heads: 1, by some reason food elements are left unused; 2, the ash from food-burning is unusually toxic or unusually difficult to absorb; 3, the secretion of the cell is toxic.

The third group is where the production of a toxin is beyond the capacity of the lymph and vascular channels for absorption.

As you will see, poisons secreted by germs located in any recess of the body or metabolism induced by those germs can not be considered as auto-intoxication. Ergo, it has no bacteriology. In a general way leucomains are mild irritants and their lesions are those of a mild irritation long continued—the interstitial inflammations.

CHEMISTRY AND PHYSIOLOGY OF AUTO-INTOXICATION.

Dr. JOHN A. WESENER—I will first discuss the decomposition of the proteid molecule while it is undergoing digestion. According to Kühne proteids under the action of gastric and pancreatic juices are changed into an hemi and an anti group. The anti group is broken down to anti-albumose and a anti-peptone, but very little of the last body is formed. Anti-peptone is a most stable compound resisting the further action of the digestive juices and even that of dilute sulphuric and hydrochloric acid. It is absorbed by the small intestine, but does not replace any waste of the used-up proteids of the body. Anti-albumose is changed to serum albumin and is the one that furnishes the body with its proteid food. According to some of the late experiments a true peptone is not poisonous, whereas both albumoses are very poisonous. The albumose when injected subcutaneously cause death; the blood fails to coagulate by reason of the fact that the lime salts are precipitated by this body. If for any reason the epithelium of the intestine fails to perform its function of changing this body into serum albumin toxic symptoms will arise. Brunton attributes lassitude, depression, sense of weight in the limbs, dulness in the head, etc., occurring in the well-fed inactive man after his meals to absorption of anti-albumoses.

Taking up the hemi group we find an entirely different arrangement. This group is burned up entirely; the stages are: Hemi-albumose, hemi-peptone, leucin, tyrosin, glutamic acid, and finally, by the action of the liver, urea. The assimilative apparatus, and especially the liver, converts the toxic hemi-albumose to the harmless urea.

Nutall and Thierfelder have demonstrated positively that bacterial life is unnecessary in the digestive processes; that the juices alone will decompose the products perfectly. Furthermore, Senator has shown that in the newborn, indican is never present in the meconium or urine. From this standpoint poisons elaborated in the intestines through putrefactive changes can not be considered as the cause of auto-intoxication.

Before leaving this part of the body a word must be said about the bile. Bouchard in his experiments has shown that the bile is very toxic. After removing the coloring matter it is poisonous to a less degree. A certain portion of the bile is reabsorbed and stimulates the liver to renewed work. This continued circulation of bile through the liver stimulates the liver to destroy the toxic substances of the digestive tract and of the body as a whole.

Uremia.—In diseases of the kidneys where elimination is bad toxic symptoms will rapidly appear, for it is by this channel that the greatest amount of extractives are removed. In Bright's disease urea has been found in the stomach; nature has merely tried to throw off waste matter. Urea, however, is not poisonous, but whenever there is an accumulation of this in the blood toxic products are also increased, so that the amount of urea may be taken as a guide to the amount of toxic material present. Uremia, according to Bouchard, is probably due to the absorption of mineral matter, especially potash col-

oring matters and alkaloidal bodies. Landois laid bare the surface of the brain in dogs and rabbits and sprinkled the motor area with creatin, creatinin and other constituents of the urine. Urea, ammonium carbonate, sodium chlorid and potassium chlorid had but slight effect, but creatin, creatinin and acid sodium phosphates caused clonic convulsions on the opposite side of the body, which later became bilateral. He concludes that chorea gravidarum is a forerunner of eclampsia.

Cellular Secretion.—Under this head I will only mention the glands of the stomach and the pancreas. Pepsin and pancreatin, when injected into the circulation, produce death. Hildebrandt finds that a fatal dose of pepsin for dogs is from .1 to .2 gram per kilogram of body weight. The pepsin is destroyed in the intestines by the action of the bile and the pancreatin by the acids of fermentation; if this process is perverted, and if the liver and the cells of the intestines have lost their destroying and converting property auto-intoxication will arise.

Brieger is of the opinion that a great many toxic symptoms in gastritis are due to peptotoxin. This body is produced by the action of the pepsin upon albumins. When the function of the pancreas becomes arrested from disease or otherwise, the formation of glycogen in the liver is interrupted and diabetes results. The same is true of other organs in the body, interference with any organ upsets not only its specific function, but causes disturbances through the body generally.

Uric Acid.—Recent investigation shows that uric acid represents the metabolism of the nucleins of the body, and is in no way related to the albumins taken in as food, for these last bodies are burned to urea. Uric acid is non-poisonous, but some bases of this group are very poisonous. According to Milroy nucleinic acid combines with proteids to form nucleo-proteids. Frölich says gout is due to a leucocytosis. The necrosis arises as follows: the immature leucocytes break down easily because the carbon dioxid remains too long in the tissue spaces; the nucleinic acid which is liberated in this way attacks the connective tissue *i.e.*, irritates it, and this forms a good basis for the depositions of urate salts which are produced by the destruction of nucleins. This theory to my mind fits much better than that of Haig's.

In conclusion, I will say that I have tried to make five points: 1. Albumoses are poisonous. 2. Bile is poisonous; that the liver uses the bile as fuel to strengthen it to destroy poisons. 3. Uremia is probably caused by several anabolic and katabolic products. 4. Cell secretion. Perverted function in one organ will affect disturbances through the body generally. That the secretions are toxic. 5. Uric acid is non-poisonous. The preceding necrosis is a perverted cell metabolism. The toxic symptoms I have not considered, because I am not ready to answer just how these arise in this condition.

THE CHAIRMAN—In the absence of Dr. Fütterer, who was to speak on the clinical relations of auto-intoxication, I will ask Dr. Waugh to take up that phase of the subject.

CLINICAL RELATIONS OF AUTO-INTOXICATION.

Dr. WM. F. WAUGH—It has been a matter of interest to me to watch the development of this question as it has appeared in the medical press. Practically starting from the publication of an article by Sir Andrew Clark on "Fecal Anemia," some years ago, there has been a continual increase in the number of articles which devote attention to it. Bouchard's book gave it considerable impetus, and the question has been steadily growing in importance; the clinical field of auto-intoxication has been gradually widening until about a year ago in the London *Lancet*, it was claimed in an editorial that not only is the materies morbi of such diseases of the alimentary tract as the cholera group, typhoid fever and all affections characterized by fetor of the stools and so on, generated in the intestinal canal, but rheumatism, epilepsy, uremia, headache, diabetes, chorea, skin diseases, and many of the chronic diseases of the brain and spinal cord. And in the current number of the *Dosimetric Medical Review* I note an editorial that opens with the assertion that he who comprehends auto-toxemia fully has but little of practical medicine to learn.

There is one phase of the question to which very little attention has been paid, though it is rather an important one. I refer to the part played by auto-intoxication in fevers. We know that in all fevers the secretion of the bile is interfered with; it is greatly lessened. We know that the bile is the natural antiseptic of the system, consequently it stands to reason that in all fevers on account of the lack of bile and the increased temperature, we have an increased tendency to decomposition of the contents of the alimentary canal. There is in fevers, then, necessarily a certain amount of auto-intoxication, and the symptoms of auto-intoxication are added to those which are due to the fever proper. By a system of efficient intestinal antisepsis these can be separated and when the effects of auto-intoxication have thus been eliminated, we find that the severity and the danger of the attack have been materially lessened. It is a question, of course, whether it is better practice to stimulate the liver, already suffering from the fever in such cases, or whether antisepsis should be secured by the use of antiseptic drugs.

UNTOWARD EFFECTS OF DRUGS AND THE DERMATOLOGIC AND VENEREAL RELATIONS OF AUTO-INTOXICATION.

Dr. WM. L. BAUM—The untoward effects of drugs in the production of cases of auto-intoxication are well known, and are described in almost every department of medicine. Certainly, almost every drug in the pharmacopeia is capable at times of causing such chemic changes in the system as to produce auto-intoxication. This is very frequently pointed out as being a peculiar condition or idiosyncrasy of the individual. Any drug can, in its ordinary physiologic action, produce a form of auto-intoxication, which may be increased or diminished, not according so much to the quantity of the drug taken, but according to some previously present condition. The subject of untoward effects of drugs is very intimately interwoven with the effects of auto-intoxication. A large number of the diseases of the skin which we are called upon to treat are the the results of auto-intoxication. For instance, gouty conditions are frequently expressed in the form of eczemas. In other individuals we have urticarial eruptions, these being often one of the untoward effects of the drugs. I might say, that among the untoward effects of drugs, so far as skin lesions are concerned, the entire life-history of the untoward effects of drugs indirectly upon the skin is that they produce upon the already altered condition of the patient a chemic change in the products of digestion which are resorbed, the result being that they exercise a very profound influence upon the vasomotor centers. If there is a decided irritation we will have the formation upon the skin of urticarial wheals; if the irritation is more intense, we have not only the formation of urticarial wheals, but erythematous or hemorrhagic infarcts due to the long-continued distention of the smaller capillaries. If the irritation continues for a long time you may have the formation simply of papules, beginning eczemas, or beginning erythematous conditions, subsequently followed by the appearance and bursting of vesicles and the red weeping eczemas. If the irritation continues, pustular conditions subsequently form and may in themselves become auto-intoxicants, such as in smallpox. Here there is a rise of temperature coincident with the change from vesicles to pustules. You have then an example of a dermatosis producing a direct auto-intoxication from the resorption of the toxins present. It would be almost superfluous to dwell upon those drugs which are apt by their untoward effects to cause similar symptoms. We find, moreover, that the irritation may be of an entirely different character; that instead of having the untoward effects of drugs in manifestations upon the skin of the patient, we have profound impressions produced both upon the nervous and genito-urinary systems. It is not always a direct mechanic irritation produced by the drug which is responsible for certain manifestations in the genito-urinary tract, but it is due to altered chemic condition, which produces intoxications which are not confined to particular portions of the anatomy, but which may become general, and for that reason I do not wish at this time to dilate very much upon this phase of the subject. Auto-intoxications also take place as a result of some disease process which allow resorption of altered urine or septic material through the destruction of some portion of the lining of the genito-urinary tract.

THE EAR IN ITS RELATION TO AUTO-INTOXICATION.

Dr. NORVAL H. PIERCE—It is not my purpose to consider the general aspect of auto-intoxication, but rather to confine myself to the very small sphere that has been allotted to me by "the powers that be." In order, however, to have a basis for my remarks, I shall assume that the term auto-intoxication means an intoxication produced by an excess of normal chemo-physiologic substances elaborated within the body, or by toxic substances derived from them in the course of a perverted metabolism, or by the absorption of toxic substances from the gastro-intestinal canal, produced by a faulty or perverted digestion. While I am not prepared to give proof of the fact, yet I am sure from clinical experience that a great many cases of so-called catarrhal inflammations, if not entirely dependent upon the absorption of toxic substances from the intestinal canal, are, at least, greatly influenced by them. Thus, cases of simple subacute ear disease will resist local treatment unless attention is given to a coexistant intestinal disease, for instance, constipation. That intestinal auto-intoxication, by its depressing influences, renders infection elsewhere more easy, there can be little doubt. We frequently

find cases of otitis precipitated by an excess in eating or drinking with derangement of the digestion, and symptoms of fermentation in the bowels. But it is more especially the diseases produced by an excess of normal chemo-physiologic substances elaborated within the body, or by toxic substances derived from these in the course of a perverted metabolism, such as urea, diabetes, etc., that I wish to consider. Disturbances of the ear are probably much more frequent in Bright's disease than we have formerly believed. Thus, Doumergue, with the object of finding the frequency of ear troubles in Bright's disease, examined seventy-two cases of nephritis, and found 35 per cent. concomitant otitis, which was probably due to uremic poisoning.

Moos has divided ear troubles occurring in Bright's disease into two groups. First, those which are directly due to increased tension of the aortic system. Second, those in which otoscopic examination gives negative results. In the first class of cases, one of the most prominent and frequent pathologic conditions found upon postmortem is ecchymosis of the mucous membrane of the middle ear. In other cases there is actual hemorrhage in the cavum, or there may be a serous exudate in the tympanum. Those cases are more readily infected than the ordinary cases of catarrhal inflammations, and are especially liable to go on to suppuration. All these cases manifest the symptoms of catarrhal inflammation of the middle ear, tinnitus, more or less deafness, more or less pain, according to the pressure in the middle ear. The symptoms in the second class of cases are tinnitus with or without hardness of hearing. When deafness occurs it may be only partial or total. Fournier says that sudden failure of hearing power in these cases may be regarded as a prodromal sign of uremia. Indeed, there is sufficient reason to believe that a sudden loss of hearing in cases of Bright's disease should put us on our guard against approaching general anasarca. The important symptom in all of these cases which we wish to accentuate is the intermittent character of the deafness. Thus, there may be daily intermissions, or the attacks may occur several times daily. It begins suddenly, and almost as suddenly disappears. Or there is a pause of two or three or eight days, or a month, and then another seizure. It has been noticed that the amount of deafness often bears a relation to the facial edema and to the general anasarca. After the disappearance of the uremic condition the ear symptom may clear up. In other cases the deafness is lasting. In some of the cases there are symptoms which lead us to believe that the labyrinth is involved, such as dizziness, nausea and vomiting. Cases are on record in which a diagnosis of gastric trouble has been made, when in reality the stomach symptoms were produced by disturbances of equilibrium. On postmortem the middle ear may be entirely free from pathologic manifestations. The greater number of authorities believe that these symptoms are produced by edema of the acoustics. One writer compares the changes found in the acoustic nerve with those found in retinitis albuminurica. The tuning fork is of little value in the diagnosis of this class of affections. Galvanic reaction of the acoustic nerve is much more preferable. The appearance and the disappearance of the symptoms are explained by the resorption and reappearance of the edema.

As regards rheumatism, while it may often cause forms of dry and moist catarrh of the middle ear, there are no peculiarities in the local manifestations which differentiate them from others due to different causes, and we only gain a knowledge of the rheumatic character of the disease by the manifestations elsewhere in the body. As regards gout, we are all aware of the peculiar susceptibility of the external ear to gouty concretions. Gout may cause disease of the middle ear by concretions about the joints of the ossicles, and especially by concretions in fenestra ovalis, binding the stapes down, so that it can not possibly oscillate. In speaking of diabetes, I will pass over the eczemas and furuncles which occur so frequently in the external auditory canal, because they are of no special importance, inasmuch as the same conditions occur elsewhere in the body, and will say that perforative inflammations of the middle ear in diabetes are probably always purulent and of bad prognosis. This is due to two facts. First, a lessening of the resistance of the tissues to microbic invasion; secondly, the presence of sugar in the tissues, which produces a more salubrious nidus for the growth of germs than the ordinary plasma. Diabetic otitis media hemorrhagica is a well-marked type of ear disease occurring in diabetes. It occurs suddenly, with few or no prodromal symptoms, blood gushing from the ear, more or less great in quantity, with perhaps little or no pain. On section, little is found except necrosis of the tissues, and Bujwid has found in such cases the streptococcus pyogenes aureus in the blood-vessel walls, and he has suggested that the action of these microörganisms directly on the blood-vessel walls, together with the inherent tendency to necrosis caused by the sugar, has produced these hemorrhages. We all know the proneness of the diabetic to mastoid disease, and we know, too, that up to late years surgeons have been divided as regards the advisability of operating on these cases, first, because of the uncontrollable hemorrhage; and second, because of the danger of infection.

At a late meeting of the German Society of Naturalists, held at Basel, this question was put to rest apparently by the greater number of authorities there, who said that they believed we may operate on these cases with impunity under strictly antiseptic conditions.

THE EYE IN ITS RELATION TO AUTO-INTOXICATION.

This subject was assigned to Dr. CASEY A. WOOD, but in his absence the chairman called upon Dr. WM. H. WILDER.

Dr. WILDER—On such short notice I do not feel competent to discuss satisfactorily the topic assigned Dr. Wood. In such a highly organized structure as the human eye, we should naturally expect to find more or less disturbance from the circulation in the blood of any of the toxic substances that arise in cell metabolism. There is one disease that occurs very frequently in the eyes of children which, notwithstanding its frequency, is up to the present time very little understood. We have had very little light thown upon the pathogenesis of so-called phlyctenular keratitis, or phlyctenular conjunctivitis.

As far as the histologic pathology is concerned, it appears to be simple enough, but there is something deeper than that, which seems to elude investigation, and I have always thought that a more accurate knowledge of the subject of auto-intoxication would enable the ophthalmologist to get some light upon this intricate topic. It certainly will repay a more thorough investigation. This disease, with which you are more or less familiar, comes on in children possessing peculiar idiosyncrasy or diathesis, and in certain individuals in whom the processes of the body are not performed as readily as in others. It appears also in certain children who are predisposed to gouty manifestations.

All are familiar with the influence exerted upon the mesoblastic structures of the eye by such diseases as rheumatism and gout, intoxication from syphilitic poison, etc. I refer now particularly to those inflammations, sometimes of a peculiarly low grade of asthenic type, that affect the iris and other uveal structures of the eye so disastrously. More light can be thrown upon the pathogeny of these affections by a more careful study of the problems that are included in the subject of auto-intoxication. Nothing can be more disastrous to the individual than a severe inflammation of the iris, or of the choroid, because it not only affects these structures but the refracting media as well.

We know also that certain of these general diseases influence very profoundly the nutrition of other refractive parts of the eye, structures which, if they lose their transparency, are unable to perform their functions. I refer now to the lens and the vitreous particularly, which having no blood supply of their own, depend upon other structures for their nutrition. Fatty degeneration, or cataractous change in the lens, is frequently induced, as we know, by diabetes.

Every general practitioner is aware of the changes that occur in the retina, that delicate nerve structure which modern histology has shown us is really a part of the brain, as a result of certain general diseases. This part is profoundly influenced by the changes that are brought about by auto-intoxication. And we are all more or less familiar with the effect of degeneration of the elements of the retina that occur in the so-called albuminuric affections of the retina. We speak of a retinitis, of an inflammation of the retina, but these changes are due to degenerative processes going on in the nerve elements, similar to the degenerative changes that take place in the glandular elements of the kidney. A more intimate knowledge of this subject of auto-intoxication will throw some light also upon the peculiar effects produced in the retina by albuminuria. The circulation in the blood of toxic substances not only affects the blood vessels of this part, but influences profoundly the nerve elements as well. There is one change that takes place in the eye, under certain conditions, which seems to demonstrate positively that this most delicate structure in the eye may be profoundly affected by the circulation in it, or near it, of some of the deleterious products of cell metabolism. I allude to the change which takes place in the head of the optic nerve as a result of tumors of the brain. It was formerly held that the so-called choked disc or optic neuritis that occurred because of brain tumor, was due merely to the stasis of circulation in this part, together with the distention of the optic nerve sheath by the fluids forced into it because of the increased intra-cranial pressure. A more rational explanation of this

condition has been advanced by Leber, in which he claims that this change in the head of the optic nerve is brought about by the direct influence of toxins generated in the tumor itself, circulating through the lymph spaces of the optic disc, and his conclusions seem to be borne out by clinical evidence, because in many instances it is impossible to find any such distention of the optic sheath as former theories would require.

(To be continued.)

Chicago Pathological Society.

Regular meeting was held January 11, 1897.

Dr. JAMES B. HERRICK, President, in the chair.

H. GIDEON WELLS, PH.B., read a paper on "A Case of Congenital Syphilis Complicated by a Mixed Infection with the Staphylococcus and Streptococcus Pyogenes." (See p. 688).

PRESENTATION OF SPECIMENS.

Dr. JAMES B. HERRICK exhibited a specimen of *Gummata of the Myocardium*. This heart, taken from the museum of Rush Medical College, was obtained at an autopsy made by the coroner's physician, on an adult male of average size who had been found dead. There is, therefore, no clinical history save that of sudden death. Other anatomic evidences of syphilis were present. The heart is a trifle large, the wall of the left ventricle thickened and the cavity somewhat increased in size, the endocardium showing a few grayish areas over the underlying gummata. The pericardium is free and smooth. The valves are unaffected save for some grayish plaques in the mitral close to a gumma. In the upper third of the interventricular septum, close to the aortic valve is a firm nodule the size of an olive bulging into either ventricle. The endocardium over the mass in either ventricle is thickened, grayish, somewhat uneven from slight irregular eminences in the nodule. One of the chordæ tendineæ running from the tip of a papillary muscle in the right heart to the posterior tricuspid leaflet, is firmly adherent about its middle to the thickened endocardium over the gumma. Some interference with the closure of the valve probably resulted. A few smaller nodules are found in the wall of the left ventricle, and here and there are a few grayish streaks in the myocardium.

Microscopically a section from one of the smaller nodules from the wall of the left ventricle shows the accumulation of round cells between the muscle fibers with consequent atrophy of the latter. In places an encircling wall of fibrous tissue is forming. No marked central necrosis has as yet taken place.

Dr. HERRICK further briefly discussed the subject of acquired syphilis of the heart as it affects the endo- peri- or myocardium, in fibrous or gummatous forms. The difficulties of anatomic and clinical diagnosis save by exclusion of other causes of cardiac disease and definite proof of constitutional syphilis, were also referred to. The therapeutic test of improvement under anti syphilitic treatment was not conclusive. Rosenfeld's asthma syphiliticum and Semmola's twenty-seven clinical cases of syphilitic disease of the heart, must be viewed somewhat skeptically in the light of Mracek's finding of only six anatomic diagnoses of syphilis of the heart in 100,000 autopsies in Vienna.

The effects of gummata of the myocardium were 1, weakening of the wall with perhaps aneurysm or rupture; 2, obstruction of a cardiac orifice by pressure, or 3, interference with the valvular mechanism by involvement of the valves themselves or by deformity of papillary muscle or chorda tendinea (see specimen); 4, the breaking down of the gumma, discharge of contents into the circulation with emboli in distant organs (*cf.* case of Oppolzer); 5, from pressure upon, or involvement of cardiac nerves, vessels or muscle, marked interference with performance of function as shown in palpitation, arythmia, dyspnea, angina. Sudden death, as in this case, was common in gumma of the heart.

Dr. E. R. LECOUNT exhibited a specimen of *Gummata of the Heart in Congenital Syphilis*. The gummata of the heart were found in the body of a child born in the practice of Dr. A. B. Strong of Chicago, to whose kindness we are indebted for the following findings:

Death occurred almost immediately after birth and the autopsy done at the Pathological Laboratory of Rush Medical College resulted in the anatomic diagnosis of: 1, syphilitic interstitial pneumonia (nodular); 2, syphilitic osteo-chondritis; 3, gummata of the heart; 4, pustular syphilides of the skin; 5, multiple foci of suppuration in the thymus; 6, hyperemia of the liver and spleen.

The heart showed a large white area on its anterior surface and three similar smaller areas on its posterior surface. On section these all showed irregular margin, lessened consistency and a disposition to spread out near the pericardium. The columnæ carneæ were involved in the larger area.

Microscopic examination of these areas revealed a proliferation of the connective tissue elements in the shape of oval or partially fibrillated cells. This was most marked around the vessels where proliferative changes in the adventitia were extensive. Widely scattered foci of necrosis of heart muscle fibers were present and these were the seat of infiltration with leucocytes.

The diagnosis of syphilis was confirmed by the microscopic examination of the liver in which a characteristic interstitial hepatitis was found, also by the examination microscopically of the osteo-chondritis and the interstitial pneumonia.

The literature on congenital heart syphilis has been thoroughly summarized by Ludvig Hektoen in a case reported of multiple foci of interstitial myocarditis in hereditary syphilis (*Journal of Pathology and Bacteriology*, Edinburgh and London, January, 1896) and a search through the Index Medicus failed to show any additional cases reported since. The above author was able to find only nine previously reported cases of hereditary heart syphilis, these being collated in the well known treatise by Mracek (Die Syphilis der Herzen bei erworbener und ererbter Lues. *Arch. f. Dermat. u. Syph.*, Wien, Erganzungsheft ii, 1893) and the syphilitic nature of some of these was doubtful.

Dr. WELLER VAN HOOK briefly discussed *Syphilis of Bones*, as illustrated by specimens from the museum of Rush Medical College.

DISCUSSION.

Dr. R. H. BABCOCK—With reference to the location of the gumma in Dr. Herrick's specimen it is interesting to note that of Grenouiller's nineteen cases, gumma was found nine times in the wall of the left ventricle and but once in the septum, six times in the wall of the right ventricle, twice in the wall of the right auricle, and once in the wall of the left auricle. The specimen which Dr. Herrick presented illustrates the frequency with which an individual suffering from syphilitic disease of the heart may die suddenly. Mracek says that out of sixty-three cases twenty-one died suddenly without previous symptoms, while if those cases were also counted in which there were some symptoms of cardiac weakness the cases of sudden death amount to 50 per cent. Such figures emphasize the gravity of this disease and the desirability of our being able to diagnosticate it during life; and yet, unfortunately, this is a disease in which the diagnosis is of the greatest difficulty and is to be arrived at oftentimes by exclusion and the history rather than from physical signs or symptoms. However, if the clinical experience of such an eminent man as Semmola counts for anything, it would seem that one of the very earliest symptoms which should direct our attention to the possibility of this disease is irregularity of tht heart's action. This irregularity may be manifested for a considerable time, may appear even during the secondary manifestations of the disease.

So far as symptomatology is of aid in diagnosis, we can only say it is that of heart disease in general. Before coming over to this meeting I stepped into the syphilitic wards of the Cook County Hospital and looked over some half a dozen male cases there. The first man I examined, one with tertiary lesions, has an enlarged area of cardiac dulness. The relative dulness extends an inch and a half to the right of the right sternal border, and four inches to the left of the left sternal border, a total transverse distance of more than six inches. The heart was rapid; the first sound a little valvular. It would be absurd for a physician to claim that this patient, although suffering with syphilitic disease in the third stage, has cardiac syphilis.

Another man, who gives a history of having had syphilitic infection twenty-four years ago, stated that last summer he suffered with irregularity of the heart's action and shortness of breath, but as he is five feet three inches in height and weighs 189 pounds, has great abdominal corpulence, one would meet with considerable difficulty, it seems to me, in saying that his symptoms are due to syphilis of the heart. Another man, a fireman, stated that last summer while at work he suffered greatly from shortness of breath. Since coming into the ward and being put on antisyphilitic treatment his shortness of breath is much less. The transverse area of cardiac dulness is six and one-quarter inches; the first sound is feeble and when the man is in a recumbent position it is almost absent; the second sound in the aortic area is accentuated; the heart's action is quite rapid, over 100. Would anybody dare say that that man has cardiac syphilis? Would anybody dare say that the diagnosis points to cardiac syphilis because the man has been put on appropriate treatment and his symptoms have been relieved, when rest from work alone would explain his improvement?

This illustrates the difficulties we encounter in making a diagnosis and the extreme caution we should exercise. Nevertheless, it seems to me not unreasonable to assume that very many of these patients have cardiac disease of one kind or another, perhaps a very much larger percentage of them than we assume or have any means of determining, for the changes in the heart do not involve any one particular structure of that organ, but all of them. The development of the disease in the heart is so insidious and the symptoms are so latent that the disease escapes our recognition through the importance and prominence of other symptoms and the fact that the patients complain of nothing with reference to the heart.

The relative frequency with which the various structures of the heart are involved interested me very much in reading Mracek's article; he states that out of 61 cases 10 showed myocarditis gummosa, 9 myocarditis fibrosa, 8 gummosa et fibrosa, 15 myocarditis with endocarditis or pericarditis, 2 endocarditis alone, 1 pericarditis alone, 1 endocarditis with pericarditis, 1 pericarditis and endarteritis, 3 disease of blood vessels, 4 diseases of the ganglia and 6 of all the parts.

The prognosis is exceedingly grave because of the fact that a considerable percentage of these cases die without previous symptoms and because of the difficulty of recognizing the disease during life; the physician, as well as the patient, is thrown off his guard and allows the cardiac disease to run its course without special treatment. It is a well known fact that any treatment addressed to this form of cardiac disease is useless unless it be appropriate and specific; that is, ordinary cardiac tonics, and so forth, are utterly useless in the absence of specific treatment.

Dr. JOSEPH M. PATTON—I am glad to hear it admitted that the obliquy of failing to apply the pathologic lessons, such as have been given us tonight, to clinical medicine, does not rest upon the internalist alone. There are several reasons why we should not be able to apply these lessons to clinical work. In those cases of cardiac syphilis where there are fibrous changes in the muscle or septum, or where gummata of the heart are developing, the symptomatology would be similar to that pertaining to any other affection of the heart muscle wherein the dynamic integrity of the muscle was directly affected. Again, in those cases where the changes due to syphilis are limited to the vessels of supply, the symptoms are identical with those pertaining to stenosis of the cardiac vessels from obliterating inflammation of any variety.

I would emphasize a point brought out by Dr. Herrick to the effect that it is unfair to accredit to certain lines of therapy curative powers for syphilitic cardiac changes. The fact is that all cases of chronic cardiopathies do quite well under the same medication as would be used in suspected cases of cardiac syphilis.

Dr. LUDVIG HEKTOEN—You have seen the beautiful specimen of so-called pneumonia alba in congenital syphilis. I present here a specimen of another form of congenital syphilis of the lung, namely, the gummatous form. You will see scattered throughout the lungs foci of a light grayish color. Under the microscope these foci are seen to be composed of areas of round cell infiltrations with focal necroses. Surrounding these areas are the characteristic desquamative changes of pneumonia alba, showing that the two forms of congenital syphilis of the lung may coalesce.

Dr. VAN HOOK made some very appropriate remarks concerning the difficulties of diagnosis between syphilis and true tumors. He stated that the microscope should be resorted to in order that the question may be definitely decided. I desire to go further and to emphasize the point that even the microscope can not always decide whether the growth is syphilitic or sarcomatous; that instances have come under my own observation in which I was unable to determine from the microscopic appearance whether a given growth was syphilitic or sarcomatous, so much similarity may there be between the structures of these proliferations. In connection with this, attention may be called to the fact that there is great likelihood that many testicles are being removed for sarcoma and other diseases that are really syphilitic. I am not able to prove this assertion at this time by any concrete example, but I have seen specimens which lead me to suspect that such things may occur.

Finally, a remark with reference to congenital syphilis of the heart, namely, that such changes have a marked practical importance because children so affected may live for a time after they are born and present no external marks of syphilis whatsoever and die suddenly.

Dr. W. L. BAUM—Dr. Hektoen called our attention to the removal of testicles for sarcomatous conditions which are really syphilitic. Until within a few months I had a case under antisyphilitic treatment which had done very well, but the patient upon removing to another city had his testicles taken out for tuberculosis.

A second case, a young man, had one of his testicles amputated for what was believed to be sarcoma, but which from the testimony of his family physician was undoubtedly syphilis of the testicles. Another physician in this case made a diagnosis of gumma of the testicle and had advised the patient to place himself upon antisyphilitic treatment.

As regards the heredity of syphilis in the third generation, it reminds me too much of the tendency we all have when attacked by gout to lay great stress on the way our grandfathers lived. I am inclined to think that a large percentage of the so-called cases of syphilis that occur in older individuals are cases of the disease acquired during infancy. When we consider that by far the larger percentage of cases of so-called hereditary syphilitic children die at birth, are born dead or die within three months after birth, it is also strange that we should see so many examples of hereditary syphilis where we find the eruption appears two months after birth with a clear history of acquired syphilis. In the majority of cases, if the attending physician examined his cases thoroughly, he would have no difficulty whatsoever in locating the primary lesion.

The cases of gumma of the heart are interesting from a pathologic point of view, but I doubt very much whether they will have any great clinical significance for the reason that a large per cent. of the cases have died suddenly at a period far remote not only from the date of the initial lesion, but far remote from the time when any active specific lesions were present; so that while the attention of the physician may be called to the fact that the patient has had syphilis, yet in these cases of sudden death it is practically worthless. Discussions upon such cases as reported point out another fact, that we should impress upon the mind of every physician who treats cases of syphilis, that the treatment means not simply the gathering of a fee from the unfortunate patient, as is too often done in large cities; the idea seems to prevail that there is a specific treatment for syphilis which is of value in every case, and which is simply routine, and no attention is paid to the fact that the patient can acquire other diseases during the time he is suffering from syphilis. No attention is paid to the fact that one individual will react violently to small doses of iodids or mercurials, while others with apparently the same conditions present require extraordinarily large doses of these remedies.

Dr. EMIL RIES—I wish to say a few words concerning the case of Mr. Wells. The complication of hereditary syphilis with infection with streptococcus and staphylococcus is highly interesting. It is to be regretted that we do not know more about the history of the case and that no examination of the placenta could be made. It is possible that infection with the streptococcus and staphylococcus took place after premature rupture of the membrane. The membranes may have been ruptured two or three weeks or a month before the child was born, as such cases have been observed. A few weeks or even days may be sufficient for infection of the fetus with the germs mentioned. If the placenta had been obtained for examination we might have known something about its condition and the route of infection. I refer here to the white infarcts of the placenta which by some authors have been considered characteristic of syphilis, which they are not by any means, and which by others have been regarded as a product of inflammation, which is not so, at least not in every case. Such infarcts may undoubtedly have a bearing upon infection, the infection following the paths of the circulatory system through the mother into the fetus. Such an infection may have taken place in this case, but we do not know whether there have been such infarcts. Beside, under confinement, within a few hours, infection of the fetus may have taken place if instruments had been used, or the vagina had been packed for hemorrhage or some such condition and such an infection may have spread rapidly after the death of the fetus. Examinations of fetuses of mothers with typhoid fever, which were made in Strassburg, and some of which I witnessed, showed how difficult it was to differentiate between intrauterine infection, infection during pregnancy or labor, and an infection after death. Fetuses of mothers infected with typhoid fever were found full of bacterium coli commune, and as there was no reason to suppose that during the life of the fetus the infection had gone so far, it had to be assumed that after death the germs had spread rapidly. Such might have been the case in the case reported where there was streptococcus and staphylococcus infection. Of course it is impossible that the streptococcus and staphylococcus could have produced abscesses after death. Wherever there were abscesses and accumulation of round cells, these conditions must have originated and then produced during life.

With regard to the cases of syphilis of the heart that were discussed to-night, they interested me very much because of

another organ consisting of muscle tissue, the syphilis of which organ we know so little, and which is so near the usual gate of infection, the uterus. Cases of syphilis of the uterus have been described in literature, but most of these descriptions are of very doubtful character. Gumma of the uterus has been described in extremely few cases.

Mr. H. G. WELLS—In regard to my statement of the impossibility of the infection in the case reported by me occurring after death, I will say that it was made because the lesions show a vital process to have taken place at the site of infection. For instance, in the abscess of the thymus shown under the microscope, the abscess is walled off with connective tissue, showing that the lesion must have occurred before death.

Dr. L. HEKTOEN presented specimens of: *1. Brain Tumors Hardened in Mueller's Fluid 95 Parts and Formalin 5 Parts.* About a year ago I showed to this Society some gross and microscopic specimens of brains and cords hardened in a mixture of Mueller's fluid 95 parts and formalin 5 parts. Particular attention was then called to the great advantage of this method of hardening on account of, 1, rapidity (one to three weeks); 2, the desirable consistency produced; and 3, the plainness and distinctness of the markings of the cut surfaces, making the specimens very useful for museum and teaching purposes, at the same time the tissue is properly prepared for various kinds of staining procedures. Since then, this method has been adopted in the anatomic department of Rush College as well as elsewhere.

I now desire to present several specimens of brain tumors; these brains were hardened *in toto* in the above mixture, and then divided into transverse sections 1 cm. thick by means of this board, which you see presents a series of grooves 1 cm. apart in which the point of the knife is held as the brain hemisphere is divided from before backward. This board I first saw used in Henschen's laboratory in Upsala, and it is a useful contrivance. Brains divided in this way allow of accurate comparisons between corresponding parts in the two sides.

The above mentioned advantages of this method of hardening and of cutting are well illustrated in the specimens from these cases.

2. Mixed-celled Sarcoma of the Pons and Left Crus.—The hemispheres show no changes except dilated ventricles. The upper or dorsal half of the pons presents an enlargement which at the posterior end assumes the form of an oval prominence lifting up the roof of the fourth ventricle, projecting into this cavity and pressing upon the vermis of the cerebellum. This mass is a little more prominent upon the left side. It is quite firm and homogeneous. It is sharply differentiated from the rest of the pons, but its exact upper limit can not be outlined, it being lost in the substance of the left crus.

Microscopic examination shows the tumor to consist of small round and spindle-shaped cells between which are interspersed a few small multinucleated giant cells, all being imbedded in a granular matrix. The tumor is rather vascular, and the vessels and vascular spaces have thin walls. Hemorrhages are not present.

This specimen came from a 30 year old woman in the service of Dr. Davis in the Cook County Hospital. In July, 1896, she complained of headache, dizziness and blind spells. On October 7 she entered the hospital, and it was then observed that the reflexes were exaggerated; that there was ankle clonus, nystagmus and retinal hemorrhages. On November 23 an exploratory trephine opening was made over the left hemisphere, but careful exploration failed to reveal anything abnormal. She died rather suddenly on Dec. 15, 1896.

3. Glioma of the Left Temporo-Sphenoidal and Occipital Lobes. Anatomical Diagnosis.—Craniotomy, encephalocele, intracerebral tumor of the left temporo-sphenoidal lobe, optic nerve atrophy, diffuse nephritis and hypertrophy of the heart.

Extract from postmortem record: Circumference of the skull 59 cm. Over the left parietal region is an oval opening in the skull 10 cm. in antero posterior diameter and 6 cm. transversely. Through this opening protrudes a soft, round mass. Over this opening the pericranium is adherent to the dura, but the dura is not adherent to the pia. The protrusion corresponds to a hernia of the brain substance. The skull cap is thin; the antero-posterior diameter is 17½ cm., the transverse 14½ cm. The margins of the opening are beveled from within outward. The dura is tense, the convolutions flattened, the pia mater anemic, the brain firm. The total weight of the brain is 1860 gms.; of the left hemisphere 940 gms.; of the right 740 gms., and the cerebellum, pons and medulla together weigh 180 gms. The optic nerves are hard and white. The basal ganglia of the left side are prominent. The spinal cord is normal. After hardening the brain in the formalin, Mueller's fluid mixture, for two weeks, the hemispheres were divided into transverse, vertical sections each 2 cm. in thickness. In the left hemisphere was a large tumor that commenced in the apex of the temporo-sphenoidal lobe and extended backward in the brain substance for the distance of 10 cm., the transverse diameter being 8, the vertical 6 cms. This mass was infiltrating and intracerebral, except in the fissure of Sylvius, where it reached the surface of the convolutions and caused pressure upon and distortion of the convolutions of the island of Reil. The left lateral ventricle was much deformed by the pressure of the tumor, the posterior horn being greatly enlarged. The tumor contained many large and small cystic cavities filled with a viscid fluid. The probable microscopic diagnosis is glioma.

In May, 1896, Dr. Van Hook operated upon this man under the diagnosis of tumor of the left hemisphere, but exploration failed to discover any growth. The diagnosis had been based upon failing vision, headache, difficulty in speaking and right sided paresis. He entered the service of Dr. Edwards in the Cook County Hospital, Oct. 2, 1896. At that time there was total blindness, slow and thick speech, choked disk and a diffuse tenderness over the top of the head. Shortly before death he was transferred to the surgical service of Dr. Davis, where he died on Dec. 27, 1896.

4. Sarcoma of the Left Temporo-sphenoidal and Frontal Lobes Springing from the Dura.—The patient, a man, age 50, came under the care of Dr. Butler in Cook County Hospital Dec. 29, 1896 and died Jan. 4, 1897. The exact onset of the present trouble could not be found out. The left eye was protruding, the left eyelid drooping. The right eye had normal vision, and reacted to light and accommodation. There was tenderness when the head was tapped on the left side. His gait was slow, the legs being spread wide apart. On January 3, shortly before his death, the patient had a convulsion during which the head deviated to the right, and the muscles of the right side being then most involved in the clonic contractions.

The postmortem shows the body poorly nourished, the left eye prominent, the dura tense. Along the under surface of the left frontal and temporo-sphenoidal lobes, the brain is firmly adherent to the floor of the skull so that removal is impossible without considerable laceration of the brain substance. The brain weighs 1710 grams. There is a large mass extending into the left frontal and temporo-sphenoidal lobes from below, the tumor springing from the dura mater, more particularly the part lining the apex of the left middle fossa. The tumor is about the size of a hen's egg. It is but very loosely connected with the brain substance and threatens to fall away from the brain. On the cut surface it is reddish gray in color and firm in consistence. Microscopic examination shows the tumor to be a small round and spindle-celled sarcoma with much fibrillar stroma and many large thin-walled blood vessels.

SELECTIONS.

Pre-Columbian Leprosy.—The *Berliner Klinische Wochenschrift*, Nov. 16, 1896, states that a discussion in the *Berliner Medicinishe Gesellschaft*, March 4, 1896, following a paper by Havelburg on "Einige Bemerkungen zur Lepra, nach Erfahrungen aus dem Lepra-Hospital zu Rio de Janeiro," Professor Virchow said: "We have only a short time for the discussion of this pamphlet. It has been reserved at the last sitting when the patient was presented here, that at this occasion when Dr. Havelburg made his communication we could come back to the question which was stirring at that time, especially to the hygienic question, What was to be done with the people? Before I open the discussion, I should like on my side to observe in regard to the observation of Dr. Havelburg that it is historically established, that leprosy was brought into Brazil by people coming from Europe; that is at least how I understood it. That this is rather a well meaning than a sure interpretation of historic facts; as far as I know, there is nothing sure in that direction, and I will only emphasize, what I have done before, that just recently more researches in America, as well in North as in South America, have commenced in order to decide the question whether there has been a pre-Columbian leprosy. I have on the occasion of the Jubilee Lewin already called the attention of the public to this that there are really all kinds of objects which may be interpreted in an affirmative sense. The most striking according to my opinion are certain earthen or

clay figures which have been found in old tombs of Peru, and which certainly show mutilations and changes of other sorts which might easily be referred to leprosy. These researches are not concluded, because we have not to do with real works of art, which might be used as authentic interpretations. Nevertheless, the things are very strange, and Mr. Ashmead, who at this moment is traveling about America in order to pursue the question still further, would probably have much to say against the theory that leprosy has surely been introduced into America. The reverse opinion is according to my mind, still discussible."

The same journal of Dec. 7, 1896, gives the concluding remarks of Mr. Havelburg: "Speaking the last of the assembly, I have only to take notice of a few observations made in this discussion. The much honored Chairman has criticized my historic indications that leprosy was imported into Brazil by the Portuguese. No evidence that leprosy existed in pre-historic times in Brazil, so far, has come to light. In a work based upon historic foundation, of Dr. Marquez Pinheiro, a jurist, and which I shall like to bring to your library, there is an historic representation of the appearance of leprosy in Brazil, and the development of the Hospital dos Lazaros in Rio de Janeiro. The Portuguese are supposed, in that work, to be the importers of leprosy. In the year 1420, the Portuguese discovered the island of Madeira; in the year 1498, under Cabrel, Brazil was discovered. Into the same period falls likewise the discovery of the Canary Islands by the Spaniards. According to the communications of differents authors, and especially of two gentlemen in the 22d volume of the *Archives for Pathologic Anatomy*, as answers to an appeal made in the year 1861, by Professor Virchow, in the case of leprosy it was most probably brought by Spaniards into the Canary Islands. In the 15th century leprosy was absolutely existing in Spain and Portugal. In 1542, the first leprosy was established in the Canary Islands, by means of the men who under the Portuguese flag, populated Madeira. At that time leprosy reached that island, so that in the year 1640 an especial lepra hospital had to be established there. But the greatest part of the emigrants directed themselves to the greater colonial possessions of Portugal and Brazil; hence that the same was done there as in Madeira. I have received by good chance a small pamphlet by my colleague Azeoedo Lima. He has much to do with the leper hospitals of Portugal. He mentions it as a fact, that in the 16th century, leprosy was carried into Brazil by Portuguese colonists. Two years ago I was asked by Dr. Ashmead, of whom Virchow also makes mention, to give him some information about this matter. As he was occupied with a work on the spreading of leprosy through the Spandiards of the American continent; and on that occasion, I found that the Brazilian authors were unanimous in this idea that the Portuguese carried leprosy into Brazil. Of course this is not a proof, and I am thankful to Professor Virchow for the appeal which he made to me, to search after the foundation of this historic idea, so generally admitted in Brazil."

NEW YORK, March 26, 1897.

Dr. WM. HAVELBURG, Hospital dos Lazaros, Rio de Janeiro, Brazil.

Dear Doctor:—In the discussion in a certain paper of yours, published in the *Berliner Klinische Wochenschrift*, Nos. 46, 47, 48 and 49, (1896) Professor Virchow disputes your claim that it is historically established that leprosy was brought into Brazil by people coming from Europe. He does not think this to be a sure interpretation. The earthen images, the huacos of Peru, he says, show certainly mutilations and changes which could easily be referred to leprosy, and the question of pre-Columbian leprosy is still open. I think with you that the disease was imported by Spaniards and Portuguese, perhaps negroes, by the last not very probably; there is not a scintilla of evidence that leprosy was here before Columbus. I have sought over all America for some possible evidence of that kind, and have not found it. As to the deformations on the huacos pottery, I have shown to the satisfaction of the Washington Smithsonian Institution and Professor Brinton, the ablest American paleontologist, that these potteries show no evidence of leprosy; they are to be interpreted as syphilis and lupus, both of which diseases undoubtedly existed before the arrival of Columbus on this continent. In the matter of syphilis, Virchow is the last to hold out against a pre-Columbian syphilis. He will not admit it. Professor Brinton wrote me some time ago, that I should endeavor to convert Virchow to my view, and I wrote to Prof. Putnam of the American Museum of National History, to forward to that German scientist, a Pachacama skull which was sent to the museum by Professor Bandelier, now at Lake Titicaca, Peru. This skull was dug out from a depth of twelve feet at Pachacama. There has never been found at Pachacama, any *post*-Columbian bones buried at such a depth. Bandelier wrote me that this skull was without question pre-Columbian. It bears osseous evidences of pre-Columbian syphilis, so that we have two evidences in favor of the latter, the huacos pottery and this skull. The bones of Colombia, the most ancient seat of leprosy in South America, have never been studied. Now Colombia is the country where this disease is most prevalent. It is my desire some day to go through this bone work for such evidence. I do not think I shall find it. As far as negative evidence can count for anything, leprosy did not exist in pre-Columbian days, in the Micmacs of Nova Scotia, the Aztecs of Mexico, the Aymaras and Iacas of Peru, nor among the Indian tribes of Brazil, *nor in Alaska and British Columbia.* You are at liberty to send this letter to Professor Virchow, or to any Berlin authority you please.

Very truly yours, ALBERT S. ASHMEAD, M.D.

The Terrible Stiletto of the Italians.—Baron Garofalo, an eminent criminologist of Italy, has said of the accursed knife of his countrymen, that it claims a homicide every two hours, or an average of twelve victims daily. It would be a curious and instructive inquiry, that of ascertaining how far offences are aggravated by the medium through which they take effect—drunkenness, for example, being a more brutal phenomenon when the drinker incurs it with ardent spirits and not with wine or beer. Similarly, personal violence is one thing when it takes the form of fisticuffs and quite another thing when it is inflicted with the knife. A people, not necessarily more depraved, may appear technically more criminal by giving vent to its passions or propensities, not in themselves worse, through agencies of deadlier power. Italy possesses an unhappy priority in lethal offences, and Northern exceeds Southern Europe in drunkenness; just because in the one case the knife is used instead of nature's weapon, and in the other because raw whisky is the available beverage and not the juice of the grape. The Italian senate on the initiative of the Marchese Vitelleschi had a full-dress debate on the prevalence, nay, the increase, of crimes of blood during the last decennium, and many were the causes, primary and secondary, adduced in explanation of the fact. Vitelleschi saw much that was answerable for these crimes in the lack of sound education, even where it is given at all, deploring, for example, the total suppression of religious instruction in schools. Again, he thought the abolition of capital punishment directly favorable to homicide. To some of his arguments the Minister Costa replied not ineffectively. Admitting the prevalence of lethal crime, he showed that it was not universally distributed throughout the kingdom—that the Southern provinces contribute to these crimes out of all proportion to their population. This would confirm Vitelleschi in his impeachment of defective schooling as a cause, these provinces being far ahead of the North in the number of *analfabeti* (unlettered). On the other hand, he drew attention to the striking fact that in Italy alcoholic

excess is not attended with increase of violence. The provinces of Italy where homicides are most frequent are, he proved, precisely those where the lower orders are exemplary for their sobriety and abstemiousness. Indeed, the supineness of Italians—the absence of all sense of citizenship—runs through their whole attitude toward every detail of national life, from representative government downward. But, again, the speaker redressed the balance in his favor when he proved that the suppression of religious (as distinct from secular) education in schools had nothing to do with the increase of lethal crime. In 1870, in Latium, where there was also religious instruction more than compulsory, there were also many more homicides. But the abolition of capital punishments he did not at all succeed in justifying. Thirty years ago in the House of Commons the whole subject was threshed out thoroughly. One of the most powerful speeches in favor of such punishments being John Stuart Mill's, who, on the ground of humanity, advocated execution as preferable to the slow torture of lifelong imprisonment with, or still more without, hard labor. But the speech of the occasion was Sir George Bowyer's, who, in answer to the pleas that capital punishment was not deterrent, adduced the following fact: A Neapolitan wanted to kill his wife. The guillotine was still the penalty for murder in the kingdom of the Two Sicilies, so he took her to Tuscany where that penalty had been abolished and put her to death there. Yet in spite of that historic debate on the subject—in spite of the fact that Switzerland, having abolished capital punishments, was compelled by sad experience to legalize them once more, the Italian Government (though not without numerous and authoritative dissentients) made the abolition of these punishments the law of the land, and we now find the Minister of Grace and Justice defending that reform in presence of "a homicide every two hours." The truth is that Italy, in many aspects of her life, has not emerged from the middle ages; that hardness of living at once inspires crime and robs detention in prison of its terrors; that the administration of justice is so perfunctory that the people, knife in hand, settle their differences among themselves; that, in fact, D'Azeglio's watchword thirty-five years ago: "Now we have to make Italians," has lost none of its significance, and that Italy's most dutiful sons are those who, like the mass of her medical men, act strenuously in the spirit of that watchword, beginning with the rising generation and so guiding its growth as to exclude the vicious and give the healthy subjects such advantages of training and environment as can alone form the groundwork of a civilized and progressive state.—London *Lancet*, January 23.

PRACTICAL NOTES.

Anti-leucorrhea Injection (Lutaud).—Tannic acid 60 grams; spirit of lavender and creosote aa 30 grams; aq. dest. 250 grams. One tablespoonful to a liter of tepid water.—*Journ. de M. de Paris*, February 28.

Influence of Food and Inanition on the Effects of Certain Microbian Toxins.—Teissier and Guinard have been studying the effects of the administration of the diphtheritic toxin and of pneumobacillin to well fed dogs and to others in a fasting condition. They found that the fasting dogs resisted the toxins to a much greater degree than the others. When they succumbed to the effects of the toxins, the lesions were much less severe than in the others. The *Progrès Méd.*, February 27, remarks that these experiments may throw a new light on the question of diet in infective diseases.

Jalaguier's Method of Securing Solid Reconstitution of the Abdominal Wall.—After incising the aponeurosis of the large rectus muscle, Jalaguier pushes the muscle to one side and enters the peritoneum through an incision in the rear wall of the aponeurosis. By this means the muscle when brought back to its former position covers and supports the suture in the peritoneum and the aponeurosis and ventral hernia from distention of the cicatrix becomes an impossibility. The details are given in full in the *Presse Méd.* of February 3. It is not adapted to cases requiring drainage, nor where extensive indurated adherences can be palpated beforehand, but for children and the usual category of cases operated upon *à froid*, or after the attack has subsided, it has proved extremely effective in his practice during the past year.

Treatment of Intestinal Troubles with Iodin.—A writer in *Wratsch* states that iodin is very effective in typhoid and other intestinal disturbances, but that the iodin, as usually administered, is absorbed by the stomach and fails to reach the intestines. He has been using it for three years in the form of amylum iodatum and recommends it in high terms. In this form the iodin reaches and exerts its inflence upon the intestines, while it does not combine with the ptomains and alkaloids to form poisonous compounds. In typhoid he administers rectal injections of dec. amyli to which is added tinct. iodi 10.0 and ol. cinnamoni gtt. xxv. Internally, amylum iodatum, 0.6 four times a day. This treatment commenced before the fourth day arrests the attack; after the first week it only attenuates it. The tongue clears off and becomes moist, the pulse becomes slower and stronger, the evacuations acquire normal odor and consistency, and the appetite improves. The temperature is not affected, but the duration of the disease is much shorter, five to six days in light cases and eleven to twelve in severe. The writer has also secured "the best" results with the same treatment in 100 cases of dysentery and several cases of cholera asiatica.—*St. Petersb. Med. Woch.*, No. 1, 1897.

Modification in the Bone Marrow Produced by the Staphylococcus and Its Toxins.—The pains in the bones we have observed in the course of certain infections are perhaps explained by some recent experiments of Drs. Roger and Josué, who injected staphylococci or their toxins into rabbits and then examined sections of the bone marrow, comparing them with normal sections. As soon as the injections in the flank had produced an abscess they found enormous proliferation of all the cells in the marrow and modifications in the giant cells, with marked congestion. After intravenous injections the proliferation was much more rapid and pronounced. Similar effects were produced by subcutaneous injections of staphylococcus toxins. Experimental septicemia also produced the same effect even more rapidly. All the elements of the bone marrow start at once to proliferating with energy, which is doubtless a phenomenon connected with the defense of the organism against the infection, as the marrow generates the leucocytes that destroy the germs. What is the mechanism by which a distant local lesion can thus act with such rapidity on the medullary tissue? It can not be ascribed to the direct action of the microbes, as marrow strewed on the culture media does not promote the growth of any microbian colonies. More than this, staphylococcus toxins injected under the skin produce the same modifications. It is therefore a question whether the cellular activity of the marrow is started by the toxins secreted by the microbes, or by nervous system. Whatever the mechanism may be, it is another demonstration of the solidarity of the different parts of the organism, showing how a local lesion may react on the most distant organs. The results of these experiments may also explain the rapid growth of the skeleton in certain affections.—*Presse Méd.*, February 20.

Voracity After Head Injuries.—Mr. Stephen Paget read a paper before the London Clinical Society on cases of voracious hunger and thirst after injury or disease of the brain. He had collected notes of fourteen cases of this kind pointing to the existence of special centers of hunger and thirst close to the

centers of speech, probably in the anterior extremity of the temporo-sphenoidal lobe, near the uncinate gyrus. A short account was given of each case, including one in his own practice. The primary injury or disease in each case was as follows: Four of the patients had received a severe blow on the forehead, two had been struck on the side of the head, two had fallen heavily on the back of the head, two had presented signs of a fracture of the base, and one had fallen from a height, coming down in a sitting posture. In addition to these eleven cases of injury there were three cases of disease; one had abscess of the left temporo-sphenoidal lobe, one had a suppurating cyst in the right temporo-sphenoidal lobe, and one had embolism of the left side of the brain. Eight of the fourteen patients suffered from voracious appetite for solid food without much thirst; three suffered both from thirst and hunger; and three had intense thirst without hunger. In none of them was the primary injury or disease fatal; it was therefore, certain that the centers of hunger and thirst were not situated in the immediate neighborhood of the vital centers. Three of them had well-marked aphasia; it was, therefore probable that these centers lay close to the centers of speech, and not improbable that they were connected with the olfactory center. This hunger and thirst was not the natural appetite of convalescent patients or of the result of any general mental derangement, and it was not secondary to traumatic diabetes. With regard to treatment, no harm had come in any case from letting the patient freely indulge his craving for food and drink. The voracious desire lasted, as a rule, for many weeks or months and then came to an end of itself.

Cerebellar Ataxia.—Dr. Campbell Meyers reports a case of this affection in a male, 17 years old, an only child, who had been attending school regularly. His paternal grandfather died at 75 of diabetes, his maternal grandmother of consumption, and his maternal grandfather of locomotor ataxia. His mother was of a nervous disposition but otherwise healthy. He was born by the aid of forceps, but the labor was not prolonged nor attended by any serious difficulties. He began to walk early, and no defect in his development or health was noticed until he was 3 years of age, when he began to suffer from diabetes insipidus, which has continued. Three years ago it was first noticed that his gait was affected and it had become steadily worse. His speech, at times, was peculiar. His general health was good. Thirst had always been extreme. Condition on examination showed the patient to be a well developed boy without any noticeable deformity about the head or body. The knee jerks were decidedly increased and there was moderate ankle-clonus on both sides, the wrist, elbow and superficial reflexes were very active. The gait was uncertain and staggering, the feet being placed widely apart. He could not start to do anything quickly. When attempting to walk he hesitated for a moment, started, walked with uncertainty and turned around with difficulty. His speech was slow, the separate syllables being all pronounced. His movements were awkward and often it was with difficulty he could prevent himself from falling backward. He could not stand steadily when his feet were together, nor could he maintain his balance when one foot was placed immediately before the other, even with the eyes open, but he at once fell sideways if the eyes were closed. There were no defects in smell, hearing or taste. A chart of the field of vision showed a bilateral contraction in the outer part for white, a more marked concentric contraction for red and decidedly contracted field for green. Central color sense was good. There was no irregular contraction of the pupils; no appreciable heterophoria with the phorometer, though the right eye appeared to roll upward. Slight nystagmus if the eyes were fixed in an upward position. —Abstract in *Montreal Medical Journal*, January.

Section of the Cervical Sympathetic in Exophthalmic Goitre.—Every new operation confirms the success of this measure, and as ablation of the thyroid gland is so often fatal and fails to remove the cause, and thyroid treatment only aggravates this disease, much is hoped from the new operation. Jaboulay now has a record of six cases, and in all the exophthalmus was immediately and enormously improved, but the tachycardia was not benefited in the same measure, although all the symptoms were much attenuated. These results confirm the theoretic basis for the operation, viz., that the disease is due to some permanent excitation of the vaso-dilating fibers of the cervical sympathetic. As the vessels are dilated to an abnormal degree, the eyeball is forced forward, the thyroid gland becomes enlarged, and all the other symptoms of exophthalmic goitre follow, all caused by hyperdistension of the blood vessels dilated by the vaso-motor fibers of the cervical sympathetic or their nuclei. Cutting the fibers therefore prevents further dilatation, and the symptoms pass away. The cardiac fibers, however, are so low down that they are not affected by the operations hitherto attempted, and sectioning the sympathetic or extirpating the ganglia, as has been done, only relieves the region innervated by the sectioned fibers. Total resection of the sympathetic and its three ganglia, which Jonnesco has performed, seems more than is necessary to Abadie, as he remarks in a study of the subject in the *Presse Méd.* of March 3. Theoretically, section of the cervical sympathetic *above* the middle ganglion, or the extirpation of the ganglion, should put an end to the exophthalmus by cutting the fibers that dilate the retrobulbar blood vessels, and section of the cervical sympathetic *below* the middle ganglion should arrest the hypertrophy of the thyroid gland. And in fact, experience is confirming the theory. When the exophthalmus dominates the scene, section of the sympathetic between the middle and superior ganglia should be the preferred operation, as it is simple, easy and effective. But if the goitre is troublesome, the sympathetic should be sectioned below the middle ganglion, a more difficult operation, and in the rare cases in which the tachycardia still persists after all other means have been tried, the efferent fibers of the inferior ganglion should be sectioned.

Tetanus Caused by Bite of Ape, Treated with Antitoxin; Recovery.—A student of the Budapest Veterinary College who had been bitten by an ape on the palm of his left hand was imprudent enough to dissect on the same day a horse which had died from tetanus, and on the following night he was seized with pain in his left hand, but waited till next morning, when he went to Professor Reczey's clinic. The wound of the hand was at once enlarged, thoroughly cleansed with a solution of perchlorid of mercury and subsequently cauterized with caustic potash. He was then sent home, and although advised to present himself at the clinic next day, did not do so, but stayed at home, where he was seized on the following night (November 12) with tetanic convulsions. A neighboring practitioner who was called in ordered large doses chloral-hydrate to be taken every two hours. On November 13 the convulsions increased in frequency and intensity. The patient was conscious, his secretions and excretions were normal, he perspired freely, and his temperature was 107.3 degrees F. He was now given a subcutaneous injection of pilocarpin, which arrested the convulsions for a few hours, but in the evening he was seized again every thirty minutes with convulsions lasting from a minute to a minute and a half. On November 14 pilocarpin was again administered, giving relief for several hours. On November 15 the pilocarpin ceased to be effective, the convulsions came on again twice every hour, and sometimes respiration stopped owing to the spasm of the respiratory muscles, so that artificial respiration had to be resorted to. It was consequently resolved to give the tetanus antitoxin a trial. The antitoxin was given in doses of 3 c.c. thrice daily on November 15, 16 and 17, and once on November 18. The patient's nights were quieter from the beginning of this treatment, and the last of the fits occurred during the night between November 17 and 18. He has been free from convulsions ever since and may be safely considered as recovered. His highest temperature was 109.7 degrees F. on November 17, and the lowest was 95.3 degrees F. on November 20. The special features of this case were: 1. The early development of the tetanus, the period of incubation lasting generally from eight to fourteen days; this rapid onset may be attributed to the obvious fact that the disease was in this case not due to bacillary infection, but rather to the absorption of toxins. 2. The absence of trismus and the absence of troubles connected with the secretory and excretory functions. 3. The marked predominence of very violent clonic convulsions, the characteristic tonic contractions being but little marked.—London *Lancet*, January 23.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
Per Annum, in Advance $5.00
Single Copies . . . . . 10 Cents.
Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 61 Market Street (Occidental Buildings), Chicago, Illinois.

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SATURDAY, APRIL 10, 1897.

A WATER SYMPOSIUM.

A special double number, for the months of March and April 1897, of the *Albany Medical Annals*, the journal of the Alumni Association of the Albany Medical College, contains a series of papers on the relation of impure waters to disease, read at the annual meeting of the Medical Society of the State of New York, Jan. 27, 1897. The intention was to present to physicians the many important facts that have been developed by special workers during the past twenty years. Some of the papers are rather elementary, and from their character we would be at liberty to form a somewhat unflattering opinion of the standard of progress among the members of the Society; but we prefer to believe that the authors were in fault in lowering the tone of their papers to the popular instead of merely to the professional plane.

Nothing new is presented in the various contributions, but all the subjects are brought up to current date. The latest observations, investigations and opinions are cited. Malaria is not regarded as propagated by water supplies. It is said that a close study of the literature shows but little reliable evidence in favor of its water-borne origin. This is the view recently taken by the bacteriologists, because they have been unable to find the causative microörganism in water; but it is to be remembered at the same time that they have as yet been unable to find it in air. The evidence of water transmission in amebic dysentery is held to be equally unsatisfactory, but here it is considered that the probabilities are in favor of the theory. The propagation of cholera by infected water is undoubted, as the presence of the spirillum has been demonstrated. Nor does there appear to be any doubt as to the causation of enteric fever by water, although in no well authenticated instance has the typhoid bacillus been isolated from contaminated water by competent observers in the past few years. It is difficult to detect it even in the stools of typhoid patients. It has been found with a larger percentage of success in the urine; but when found its identification involves so much careful bacteriologic work that a simpler test of its presence is needful for diagnostic purposes than that dependent on its detection and identification. This appears to have recently been discovered by WIDAL in the action of the antitoxin in the serum of the blood of a typhoid patient on pure cultures of the bacillus. The dried blood test as applied by JOHNSTON of Montreal to attenuated cultures is now in use in most of the laboratories of the United States. This, it is hoped, will determine the presence of typhoid infection in the individual. To determine its presence in a water supply, we have only to look at the records of typhoid prevalence or mortality in the community supplied by the water. With a pure water supply the typhoid death rate is low; with a contaminated supply it is high. European cities have low rates because care is given to the purity of water. American cities have high rates because the supply is distributed without purification. Dr. THOMAS B. CARPENTER gives an excellent discussion of methods of bacteriologic purification. All the evidence is in favor of the efficiency of natural sand filtration. Bacteriologic data are not available to determine with precision the efficiency of mechanical filtration, with or without coagulants such as alum or iron; but the typhoid rate of cities supplied by these filters is considerably higher than that of communities having efficient natural filtration. Chemic and electrolytic methods have not proved satisfactory. The nitrification of organic matter in polluted water or sewage in its disposal by irrigation or soil filtration, is held by E. K. DUNHAM to be the best method of preventing the fouling of river waters because this is nature's method of operating.

The discussion thus far was mainly of interest to bacteriologists, health officers and sanitary men; but as so many of the auditors were practicing physicians, it was deemed advisable to give some consideration to the management of typhoid fever, the most important of the diseases caused by contaminated water. It was held that the WOODBRIDGE treatment should be accorded further trial; that the depressant action of the coal tar derivatives should be carefully watched; that the diarrhea of typhoid is salutary and should be gently promoted, but that the main dependence must be placed on hygienic conditions, milk diet and care-

ful nursing. The BRAND treatment, immersion in cool water with active friction of the surface, repeated every three hours so long as the temperature is above 102.5 Fahr. and with the free use of water internally was strongly advocated. The discussion closed with an article on disinfection in the individual case—the disinfection and disposal of the intestinal discharges, urine and bath waters, the disinfection of the bed pan, the thermometer, the rectal syringe and tubes, the hands of nurses, attendants and physicians, door knobs that may have been touched with soiled hands, and of course the bed and body linen of the patient.

The subject of contaminated water is one of great and increasing importance in this country, where cities are growing with phenomenal rapidity. The State Board of Health of Massachusetts led off in the effort to protect the purity of public water supplies, and a few other States are following her example. Discussions such as that under consideration can not fail to have a powerful influence for the public good, and Dr. HENRY HUN of Albany, who organized it and all those who contributed to it deserve the highest credit.

PLUMBING SIMPLIFIED.

Modern sanitary plumbing establishes two lines of defence against the intrusion of sewer air into our dwellings: 1. An exterior line consisting of a water trap on the house drain, with a fresh air inlet to the soil pipe on the house side of the trap. 2. An interior line consisting of a water trap beneath each fixture with a vent pipe on the soil-pipe side of each trap. The first prevents the pipes in the interior of the building from being in any way affected by varying air pressure in the sewers and establishes a ventilating current in the soil pipe itself. The second protects the interior from the intrusion of soil-pipe air and insures the traps against siphonage. The plumbing regulations of most of our cities require each trap to have a vent pipe of suitable size at or near the crown of the trap and extended to the roof, or connected with the soil-pipe line above the highest fixture. No sanitary plumber, sanitary engineer, or sanitarian, has questioned the efficiency of a system constructed in accordance with these requirements. On the contrary, the suggestion occasionally made that internal pressure in the sewers might be relieved through the soil pipes, implies that in the opinion of those making the suggestion the water trap in the house drain and the fresh air inlet to the soil pipe are not essential to the protection of the house; but the objection to the general acceptance of this view is that if any one of the house traps should become unsealed, sewer air would be drafted through it by the warmth of the interior instead of passing up into the atmosphere above the roof through the extension of the soil pipe.

And now comes a sanitary engineer of some prominence, Mr. WILLIAM PAUL GERHARD of New York, who while retaining intact the first line of defence considers the interior line to be unnecessarily complicated and expensive. He is led by years of observation to believe that the trap venting law is a mistake which will ultimately be remedied by repeal. He makes use of non-siphoning water sealed traps and in the case of water closets common S traps with such a depth of trap seal as will not be destroyed by the discharge of other fixtures. In a small building having only one or two fixtures on each floor, he leads each waste into the vertical soil pipe by a separate entrance and, when untrammeled by plumbing regulations, does away with the separate vent pipe for each trap, maintaining that the air movement through the soil pipe will prevent siphonage and that the rush of liquid through the short wastes will keep their interior clean notwithstanding the absence of vents or ventilation. In a large building where several water closets, basins and baths are aggregated on each floor he leads each waste by a separate opening into a branch of the soil pipe. This branch does not begin by a dead end at the distal fixture, but by an open end above the roof, whence it descends of full size to its junction with the soil pipe, receiving its separate wastes near this junction. Its free opening above enables it to act as a vent for the traps connected with it, while its communication below with the ventilated soil pipe gives free passage to an air movement through it. It is not to be expected that this air movement will be as free as that through the direct vertical extension of the soil pipe, but the frequency with which the branch is flushed by the use of its fixtures keeps it practically clean.

There is no question that the separate venting of each trap complicates the piping and adds largely to the expense of our present system of plumbing. If Mr. GERHARD'S experience is sustained by further investigation an important modification of the Plumbing Regulations would be warranted. Ten or fifteen years of ago every sanitarian would have protested against a proposition to modify them, and even now many who have not given this subject consideration would no doubt promptly vote it down as a backward step in the progress of modern sanitation; but we must remember that the present Regulations with their positive requirement of a vent for every trap were formulated when sewer air was regarded as *sui generis* in its deadly and penetrating qualities, and when it was considered that any deviation from the accepted system might be followed by the most dangerous consequences. In effecting protection at that time it is possible that the pendulum may have swung too far to one side. The knowledge of typhoid fever causation possessed by the profession is better defined now than it was then, so that when a proposition of

this kind comes from an experienced worker and observer in this particular field of sanitation it might be well for municipal authorities to consider the subject with a view to determining whether security with simplification and materially lessened expense might not be attained by a revision of their Plumbing Regulations.

OSTEOPATHY.

The attempts in certain States to legalize the practice of "osteopathy" have attracted the attention of the *Medical Record*, which wonders what this new eccentricity of the West means. It fails to recognize an old exploded quackish system, based on one of the many distorted hypotheses of the reflex origin of the disease, known as "bonesetting." This system, starting from the results of massage, claimed that diseases were the results of irritation about bones, which could be relieved by manipulation. Probably coeval with the evolution of medicine from fetichism, it has always maintained itself among the degenerates who constitute most of the devotees of quackery. In the middle of the 18th century it had such a predominance as, like other forms of quackery, to encounter the satiric pen of HOGARTH. In his "Company of Undertakers" are three prominent quacks, the most recognizable of whom is Madam MAPP, a famous "bonesetter," or "shape mistress" of the third decade of the 18th century. The other two quacks in HOGARTH's caricature were "drop and pill" WARD (whose remedies gained royal patronage through fees paid the mistresses of GEORGE II.) and "oculist" TAYLOR, who cured all sorts of diseases by operations and manipulations on eyes, after the fashion of the cylinder quackery of today. Both were in great esteem in the society world when its attention was, according to JEFFERSON ("Book about Doctors"), suddenly attracted by a female bonesetter (who, like the "snapping doctors" of early days in Illinois, gloried in enormous feet and hands). "Crazy SALLY of Epsom" was an enormous, fat, ugly, drunken woman, a haunter of fairs, about which she loved to reel screaming and abusive in a state of roaring intoxication. This attractive lady was so much esteemed for skill in her art that the authorities of the watering place at Epsom offered her $500 yearly to reside there.

"Crazy SALLY" awoke one morning to find herself famous. Patients of rank and wealth flocked in from every quarter. Attracted by her success, an Epsom swain made an offer of marriage to SALLY, which she accepted. Her maiden name of WALLIN (she was the daughter of a Wiltshire "bonesetter" of that name) she exchanged at the altar for that of MAPP. If her marriage were not in all respects fortunate she was not burdened with much of her husband's society. He lived with her only a fortnight, during which he thrashed her soundly thrice and decamped with her earnings. She found consolation for her wounded affection in the homage of the fashionable world. She became a notoriety of the first water, "a gem of purest ray serene," and every day some interesting tale appeared about her in the London newspapers. The most prominent of these stated that "the cures of the woman bonesetter of Epsom are too many to be enumerated; her bandages are extraordinarily neat and her dexterity in reducing dislocation and setting fractured bones wonderful. She has cured persons who have been twenty years disabled and has given incredible relief in the most difficult cases. The lame come daily to her, and she gets a great deal of money through persons of quality who attended her operations making her presents." How much she paid for this "write up" is not known, but paid "write ups" of quacks were then, as now, essential to "newspaper enterprise."

Mrs. MAPP continued to reside at Epsom, but visited London once a week. Her journeys to and from the metropolis were performed in a chariot drawn by four horses, with servants wearing splendid liveries. She used to put up at the Grecian Coffehouse, where Sir HANS SLOANE (the founder of the British Museum) witnessed her operations, and was so favorably impressed by them that he put under her charge his hysteric niece, who was suffering from a "spinal" affection. On the stage the following ditty was sung, which (like similar performances in the English music halls and French guinguettes) served at once for satire and (paid for) advertisement:

> You surgeons of London, who puzzle your pates,
> To ride in your coaches and purchase estates,
> Give over for shame, for pride has a fall,
> And the doctress of Epsom has outdone you all.
>
> What signifies learning or going to school,
> When a woman can do, without learning a rule;
> What puts you to nonplus and baffles your art,
> For petticoat practice has now got the start.
>
> In physic, as well as in fashion, we find
> The newest has always its run with mankind;
> Forgot is the bustle 'bout Taylor and Ward,
> And Mapp's all the cry, and her fame's on record.
>
> Dame Nature has given a doctor's degree,
> She gets all the patients and pockets the fee.
> So if you don't instantly prove her a cheat
> She'll loll in her carriage whilst you walk the street.

On one occasion as this lady was proceeding in her carriage and four, dressed in a loosely-fitting chemise, manifesting by her manner that she had partaken somewhat too freely of gin, she found herself in a very trying position. Her fat frame, indecorous dress, intoxication, and dazzling equipage were in the eyes of the mob such sure signs of royalty that she was immediately taken for an unpopular mistress of George II. Soon a crowd gathered around the carriage, and with the proper amount of swearing and yelling, were about to break the windows with stones, when the spirited occupant of the vehicle, rose from her seat and letting down the glasses exclaimed with an imprecation more emphatic than polite, "Don't you know

me? I am Mrs. MAPP the bonesetter." This brief address so tickled the humor of the mob that the lady proceeded on her way amidst deafening acclamations and laughter.

Bonesetting early made its appearance and had its own literature in the New England and Middle States, especially in Connecticut. In 1696 the "library" of a certain "Dr." PORTER of Hartford was advertised for sale. It consisted of a "bone-sett book valued at two shillings." Up until 1890, descendants of this Porter did "bonesetting" in New England and extended their ravages to New York City. Bonesetting skill was hereditary and generally transmitted in the female line. In certain respects the female magnetic physician, so boomed of late by the septuagenerian editor of a Chicago newspaper, is a practitioner of the "boneset" hypothesis, who like her Epsom predecessor of old, owes her fame to the "thrill of the touch of her sex." The bills for legalizing "osteopathy" are attempts to evade medical practice acts under pretense of regulating bonesetting practice. Under these bills, could practice the before-mentioned female "magnetic physician," whose circulars have been excluded from the United States mails on the score of indecency. The Iowa legislature has defeated one of these bills and that of Illinois will doubtless do the same. The *Medical Record* however should not be too severely criticised for its ignorance of "osteopathy" albeit a female "osteopathist" or "bonesetters" in the days of its editor's youth created a great furore in New York City. The *Medical Record's* knowledge of either medical history or medical science is, it must charitably be admitted, an unstable quantity. It revived Alexander II., after his encounter with the nihilist, by the use of "oxygen sulphate." A medical journal capable of such a chemical extravaganza can hardly be taken seriously on any subject.

THE DISPENSARY AND HOSPITAL ABUSE IN NEW YORK CITY.

The dispensary and hospital abuse war has virtually opened. The promise is that of long duration, with much acerbity of feeling and a probable ending in much confused legislation. The seat of war is in the Greater New York. Greater demoralization—to continue the favorite adjective of the Knickerbocker State—likewise prevails. Very unexpectedly, the discovery has been made that human nature is no better there than in the distant territories, for committees have made patent to all that "the dispensaries and hospitals, more particularly the out-patient departments of hospitals, were guilty of gross negligence in discharging the trust committed to their care." Worst of all, there comes likewise the usual unhesitating declaration that the abuses are chargeable wholly to the medical practitioners themselves. "And," says the committee, "the doctors, who really lose heavily by the practice of treating free persons who are abundantly able to pay, are so eager to get dispensary and hospital appointments, and to establish small dispensaries of their own, that, in the opinion of the committee, they cannot be influenced or restrained except by legislative exactment."

Passing by our Excelsior sister's "faith-curist" bias toward law-making and hospital Saturdays and Sundays, there is after all a modicum of sense in the clearing-house system for the riddance from overlapping charity. We confess to the suspicion that after all there is no monopoly of pauperism or fraud any more than of intelligence or honesty. The Charity Organization Society may do its work effectually, and the enlarged State Board of Charities much more, but self-examination should not fail to reveal the fact that the sinners are very near to home. Let us concede for the sake of argument that the profession itself, somewhat addicted to signing petitions with a mechanical persistency, is really culpable. Let us not gainsay the fact that there has been an over-preachment of benevolence to every medical student in the land, that there has been much beckoning into the halls of learning, that there has been no lack of gaudy perspectives and that there has been an unstinted flow of gold from the reservoirs of the rich. Let us, however, confront the situation at once by the question, Wherein lies the remedy? Let us leave behind us the topic of pauper-making and with it the hope of relief by special legislation.

New York has adopted a general leveling process and requires of her charlatans a better equipment. Might it not be charged that there has been a mingling of codes without much improvement in morals, and that a free field had been given for a sham battle? Furthermore, might there not be a more thorough probing of our own wounds without considering at all the minor plaints of the discouraged whose purses may or may not have been depleted by reason of the counter prescribing or the fakir with ingenious devices? In very justice, might we not still further ask, have the hospitals or dispensaries done much more than take what the profession has refused? Again, the individual has from time immemorial resented the demand of "your money or your life."

The profession, along with the multitude, of which of course it is only a puny part, has keenly felt the depression of the financial condition and much envied incomes have been at a discount. But the paucity of fees can hardly be chargeable to the rapacity of institutions. The only allegation can be that there has been a lazy distribution of benefits and a quieting of conscience, after the fashion of the revolving prayers of the Chinese. As an outcome of newspaper exploiting, some one or other "memorial" institution enters merrily upon its duties with a political corporation at its back, or a millionaire far in the van. In

the revolution which settles the ultimate distribution "the outs" become "the ins" and the public contents itself with visiting its wrath upon the ambulance surgeon, as the incarnation of the concentrated brutality of his superiors.

We may speak warmly of the commercialism of the day, which is ever coaxing the roar of traffic into every channel, but at the same time can much be looked for in legislation run mad? Can we yet accept the ultimatum of being split into guilds in preference to submitting with dignity to our own calamities? For the present we may have less to do, but can we be deprived of the satisfaction of more thorough work or more deserved if not achieved success? The poor may have marble hearts, but let us not therefore descend to cataloguing our own attainments in the public prints, or express our surprise that photographs should ever be purloined by reporters. Let us remember that we need not give what can not be sold for the highest price, nor preach that common code that the rich must pay for the poor. Let us recall the long ago when we parted from the clergy that we also shared the vows of poverty, chastity and obedience. Above all, "let us have peace."

CORRESPONDENCE.

Reduced Mortality from Consumption in Massachusetts.

BOSTON, MASS., March 29, 1897.

To the Editor:—In your issue of March 27, just received, I find the following quotation from a paper by Dr. A. Walton, entitled a "White City for Consumptives":

"From conversation with prominent men in Massachusetts, where consumption is *rampant*, I am led to believe the State of Massachusetts would infinitely prefer to have a consumptive State home somewhere where there was a possibility that at some time there would be an end to the enormous expense incident to carrying on a consumptive home within its own borders, where they now have such an institution, which is merely the last resting-place of the persons who are received there. People do not go there to be cured; they are supported by the State until such time as death ends their sufferings."

The foregoing paragraph contains so many remarkable misstatements that I am constrained to make the following comments upon it:

When present times are compared with past, *consumption is not "rampant"* in Massachusetts. As a matter of fact, it is steadily diminishing, the death rate from this cause having fallen off just one-half in fifty years, and if the same rate of decrease continues, we may look for its extinction in the first half of the next century. The death rate from consumption in Massachusetts is no greater than that of Germany, France, Austria or Belgium.

"Massachusetts would infinitely prefer to have a consumptive State home" somewhere else. In reply to this statement, it is only necessary to say that Massachusetts has already indicated her preference by establishing a home within her own borders.

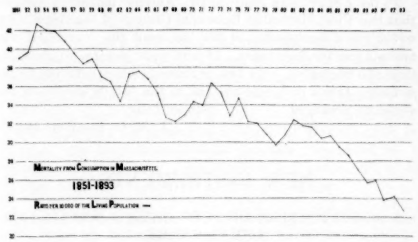
"An end to the enormous expense." Is not the expense of transportation of some thousands of people from New England to New Mexico something of an item?

"The last resting-place of persons who are received there." No persons having been received there, this statement may be discounted.

"People do not go there to be cured." Very true, since no one has ever been there for any purpose except the construction of the hospital.

"They are supported by the State till such time as death ends their sufferings." The writer probably intended this as a prophecy and not as a fact. All honor for good intentions!

The State has indeed established a hospital for consumptives, now in progress of construction on elevated land; a sunny southern slope, 1,200 feet above the sea and about sixty miles from the seacoast. It will be ready for occupancy some time next year, possibly earlier.



With reference to the curability of consumptives by treatment in favorable climates, I have no doubt whatever, but this method does not apply to persons of slender means living at distances of 2,000 miles or more from such regions. Moreover, there is reason to believe that a very considerable proportion of consumptives may be cured, even in unfavorable climates, under proper treatment.

The German government has recently issued a circular in which it commends the establishment of homes for consumptives in the highest terms, stating that by the returning of a small percentage of consumptive wage-earners to their families, nearly two million dollars a year are saved to the government, after deducting the cost of treatment. The circular closes with these words: "If there is any work which is at once a blessing to mankind and also of pecuniary value to the community (*menschenfreundlich und nutzbringend*) it is the establishment of homes for consumptives."

Yours truly, SAMUEL W. ABBOTT, M.D.

"Fish Diet and Leprosy."

NEW YORK, March 29, 1897.

To the Editor:—In your issue of March 27, under heading "Public Health," a paragraph labeled "Fish Diet and Leprosy," you quote from the *London Medical Press*, giving credit to Dr. Hansen of Bergen of some views of my own, which were published originally in the *University Medical Magazine*, January, 1896. The article was translated by Hansen into Norwegian. I sent also a reprint of it to the *Sei-I-Kwai* medical journal, from which Japanese paper the *London Press* quotes. Whether it is originally the *Sei-I-Kwai* which attributes these views to Hansen, I do not know; it is not likely; it may be the *London Medical Press*. At any rate, there is here a slovenliness of medical journalism and literature that is really remarkable. I do not see why these views should seem *so very new to most leprologists*. I began to expose this theory six years ago. It might be possible, nevertheless, that these views were new to most leprologists, if only the art of printing, electricity, etc., had not been invented some time ago.

Strange to say, Hansen is not one of the advocates of the fish theory, as is shown by the following passage from his book, "Leprosy in its Clinical and Pathological Aspects": "Against Hutchinson's hypothesis there is in the first place the fact that

we have never succeeded in cultivating the bacillus, which, if the bacillus lived as a saprophyte on decaying fish, would be a very simple matter. And there are, secondly, places where the inhabitants certainly and frequently employ decaying fish without the disease appearing. And thirdly, there are many places authoritatively indicated where leprosy is present, and where no fish is eaten." Very truly yours,

ALBERT S. ASHMEAD, M.D.

Reply to Dr. Anders.

CHICAGO, April 5, 1897.

To the Editor:—In reply to Dr. Anders' inquiry I can say that the First Methodist Episcopal Church of Waukegan, Ill., which has a membership of 300, has used the individual communion cup for four years. It met with general approbation from the beginning, only two or three members refusing to participate. It is a complete success, as the details have been conveniently arranged. Respectfully,

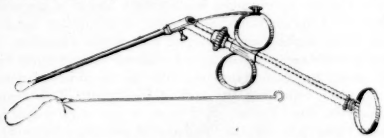
J. M. G. CARTER, M.D.

NEW INSTRUMENTS.

A MODIFICATION OF BOSWORTH'S NASAL AND AURAL SNARE.

BY P. L. ANDERSON, M.D.
CHICAGO.

Long experience with the various snares on the market has demonstrated that while they all have their individual points of excellence, no one snare combines all of the good qualities without some of the bad ones. The accompanying cuts show by comparison, the simplicity and advantages of the Bosworth snare as modified by the author.



ANDERSON'S MODIFICATION OF BOSWORTH'S SNARE.

Instead of the long wire loop, there is substituted a flexible steel stilette, with one end flattened and having a round eye large enough to receive a double thread of No. 5 piano wire; the other end terminates in a circular hook, the central point of which is in line with the long axis of the stilette. The stilette is inserted into the canula of Bosworth's snare with the eye projecting just beyond the distal end, in position for

BOSWORTH'S SNARE.

threading with the short loop of wire. The other end is hooked around a screw-post set into the upper finger-ring of the sliding handle. This post is provided with a thumb-screw which securely holds in place the hook, allowing the stilette to slide either forward or backward. The advantages of this modification are:

1. The facility for threading the stilette with a short wire loop instead of using the long wire loop and having to pass it through the canula and fasten to the retention pin.

2. The wire loop may be bent to any curve and withdrawn into the canula so that but about one-half inch of the loop projects, thereby leaving it small and very convenient to introduce into the nose. After it is in the nose, the loop is easily projected farther by the sliding handle, and being of the flexible steel, assumes its original upward, bent position. This allows the operator to introduce the instrument, adjust the loop and complete the snaring by the use of one hand only, which gives the eye a complete view of the entire field of operation and leaves the other hand free to hold the speculum.

3. It is easily taken apart and cleansed after each operation, and is no more expensive than a Bosworth.

84 Dearborn Street.

PUBLIC HEALTH.

The Water Supply at Greater New York.—Among the liberal concessions to the public, may be noted the local Board of Health agitation regarding the water supply of the village of Flushing, Long Island. A communication to the State Board has been forwarded requesting the adoption of a resolution providing for the same protection as is already in effect in the Brooklyn water supply. It is to be hoped that the "Borough" of Brooklyn will balk the efforts of its contractors to become of themselves suddenly rich at the expense of the already overburthened tax-payers. Luxuries are very costly.

Contagion in Public Schools.—The New York Health Board staff of medical inspectors reported as the result of their first day's work: Number of boys examined 2,565, girls 1,690; cases of measles, 3; diphtheria, 14; scarlet fever, 1; mumps 3; eye diseases, 35; parasitic diseases of the head, 55; parasitic diseases of the body, 12; chickenpox, 8; cutaneous diseases, 8. These cases were presented by the teachers of the primary departments as being the most under suspicion, the remainder and the higher grades to be examined are not expected to give near the number just reported. The Board, however, think the result justifies the importance of the system, inasmuch as very many parents studiously avoid calling in a physician at all, rating school advantages above every other consideration.

The Bacteriology of Rinderpest.—This epizoötic disease was recognized as early as 1715; it again made its appearance in 1745, and in 1865 there was a tremendous outbreak, which led to the Royal Commission and the stamping-out order of 1866. Since that time only a small outbreak in 1872 has been recorded, and this was stamped out almost immediately. It is, however, stated to be epizoötic in Asiatic Russia, in Hindoostan, Persia, China, and even Ceylon, but on this point it is difficult to obtain very accurate information. From the very first the disease was stamped as contagious, and several attempts have been made to trace the fons et origo mali. Murchison maintained that the cattle plague resembled smallpox in all but the cutaneous eruption, but further acquaintance with the disease did not allow of the analogy being carried very far. The disease, however, runs the course of a specific infective fever, the incubation period is short, the symptoms are marked, and the pathological changes are definite.

The contagion was by Burdon Sanderson localized in the blood as well as in the discharges, and in his report to the commissioners appointed to inquire into the origin and nature of the cattle plague, he pointed out that the serum separated from the blood of an animal suffering from this disease contained the contagium which could be transmitted by experimental infection to other animals. Beale described cocci; Sanderson and Smart of Edinburgh, saw them also, and in 1883 Semner brought up the subject again, and described streptococci as the cause of the disease. Whether these cocci are primary or secondary still remains to be seen and proved, but from the whole nature of the disease we should expect to find some "contagium vivum" as its primary cause—a contagium which is

easily carried, which may be inoculated by flies, and which it is very difficult to render inert in the countries in which the disease is enzoötic.—*British Medical Journal.*

Public and Private Filtration of Potable Waters.—Dr. Maxwell Ross, in the *Sanitary Journal*, January, traces the advances made in the last decennium in the above department of sanitary work. It was in 1887 that Piefke, the resident engineer at the Berlin Waterworks, came to the conclusion that the effective barrier to the passage of microörganisms through the sand-filter was the coating of slime which forms on the top. A filter constructed of sterilized sand was found to be absolutely useless. It increased instead of diminishing the number of the organisms. Examination of a section of one of the ordinary working filter-beds showed that nearly five-sixths of all the organisms it had retained were to be found in the surface layer, and that the numbers in successive layers rapidly diminished from above downward. In 1890 Frankel and Piefke, using first a pigment-producing organism, bacillus violaceus, and afterward the organisms of cholera and typhoid, showed that sand-filters, even under the most favorable conditions, did not offer an absolute barrier to their passage, but that the numbers which made their way through depended on the rate of filtration and the formation of the slime coating. A study of the Altona outbreak gave origin to the classical paper by Koch on water-filtration and cholera. During the serious epidemic in Hamburg in 1892, Altona, which took its water from the Elbe, contaminated with the Hamburg sewage, but filtered it before distribution, was practically free from the disease.

"At the water-work of that city, which," says Koch, "is fortunately managed by one of our ablest and most experienced filtration-technicians, the rate of 100 millimeters (per hour) was never exceeded during the cholera epidemic, and it was evidently due to this precaution that Altona suffered in so strikingly slight a degree. According to the information at my disposal regarding the cholera in Altona, there were about 500 cases there, of which, however, at least 400 were found to have been introduced from Hamburg, or to have originated through intercourse with the harbor, or must be regarded as emanating from such cases by direct transmission. Of the remaining 100 cases, which can not be directly or indirectly traced to Hamburg, a certain number will nevertheless have been of the same origin, though it was not possible to prove it. Whether among the remnant of cases left after these deductions, which, as having originated independently of Hamburg, form the Altona epidemic proper, there were a certain number of cases which were due to the imperfect cleansing of the infected Elbe water in the sand-filters, can, I suppose, never be decided. After the investigations of Frankel and Piefke, however, which have shown that, at a filtration rate of 100 millimeters, the cholera bacteria are not completely kept back by sand-filters, I think it very probable. But the number of cholera cases that originated in Altona in this manner can not have been at all considerable, and it will probably not be possible to demand that, in order to prevent such isolated cases with certainty in the future, the sand-filters must be enlarged to two or even three times their present dimensions. All that we yet know of sand-filtration, therefore, compels us to admit that, even under the most favorable circumstances, it can not afford absolute protection against infection, though it does afford a protection with which, considering the practical conditions of life, one may rest content."

That such protection is not absolute was shown by the experience of Altona during the following winter. The epidemic had almost entirely died out in Hamburg when a series of cases occurred in Altona which could in no way be connected with Hamburg. The water was suspected, and an investigation showed that the number of germs in the filtered water, which was examined weekly, had increased rapidly immediately before the fresh outbreak.

"The water coming from each filter-bed was then examined separately, and it was found that the increase came from one of them. When the water was drawn off it was seen that the sand-layer was frozen at the top, and was in consequence unable to retain the bacteria. The filter-bed had been cleaned during the cold weather. Other natural agencies may have a similar effect. One of these may be an excess of vegetable growth in summer. When this happens the working of the filter is liable to be stopped, and if the consumption of water is at its height, too little time may be given for rest after cleansing, and it is immediately after cleansing before the slime coating has properly formed, that the filter is least able to retain bacteria. In addition to these natural agencies, careless or ignorant manipulation of the filter-beds may also expose the consumer to the risk of infection if it should happen that the organisms of infectious disease are present in the water when the disturbances in the filters are allowed to occur. An example of this is the Paisley typhoid epidemic of 1893. There is no doubt that the water supply was implicated in the spread of the disease. Professor Frankland, it is true, did not find the typhoid germ, but, as he very properly pointed out to the commissioners, the failure to find it did not prove that it was not there. He did find an organism closely allied to it, the bacillus coli communis, which is normally present in the feces of man and the higher animals."

Koch suggests that a daily bacteriologic examination of the filtrate should be made. Except in times of danger this is hardly necessary, but a frequent examination of the effluent from each filter-bed will always be of value, indicating whether the filter is acting properly or not. Lastly, it must never be forgotten that the protection afforded by sand-filtration is relative, not absolute, and it is therefore incumbent on local authorities and water commissioners and companies to select their supplies from sources as pure as possible.

"To the subject of domestic filtration I can only refer very briefly. Where filtration is done on the large scale it should not be required, but as unfiltered water is not unfrequently disturbed, domestic filters have their use. Their name is legion. Practically, only two can be relied on to remove disease germs. These are the Pasteur-Chamberland and the Berkefeld. The former is made of porcelain clay, the latter of a diatomaceous earth. Both yield a sterile water, but after being in use for a time bacteria begin to appear in the filtrate. The filters must then be re-sterilized. This may be done by boiling or by the use of hydrochloric acid, but some care is required with the Berkefeld as it is brittle. The opinions of experts appear on the whole to be less favorable to it than to the Pasteur-Chamberland. Though it yields a more palatable water it becomes non-effective much sooner. Dr. Johnston's experiments in the public health laboratory of the University of Edinburgh showed that, while the Berkefeld allowed bacteria to pass, in periods varying from three to ten days, after continuous use, the Pasteur filter remained sterile for over six weeks. To the use of this latter filter in the French army has been attributed a great decrease in the mortality from typhoid. At Darjeeling its use in a large institution has been followed by the cessation of a prevalent dysentery, and a large installation is now being prepared for the central water supply of the place—that is to say, utilizing this which has hitherto been a laboratory and domestic filter for filtration on the large scale. The experiment will be watched with much interest."

SOCIETY NEWS.

American Climatological Association.—This Association will hold its annual meeting in Washington, D. C., May 4, 5 and 6, 1897. The sessions will be held daily from 10 A.M. until 1 P.M., in the Columbian University Building. The general sessions of the Congress will be from 2 until 5 P.M., and an annual dinner will be held at the Hotel Normandie on the evening of May 4. The following are the officers: President, E. Fletcher Ingals, M.D., Chicago; vice-presidents, S. A. Fisk, M.D., Denver, J. C. Munro, M.D., Boston; secretary and treasurer, Guy Hinsdale, M.D., Philadelphia.

Texas State Medical Association.—The Texas State Medical Association will hold its annual meeting in the city of Paris, Texas, April 27 to 30. Would be pleased to have you contribute a paper to my section, General Medicine. It is our desire to make this the most pleasant, important, as well as profitable meeting in the history of the Association. Will you notify, at once, either Dr. Horatio L. Tate, secretary, Lindale, Texas, or myself, of the title of a paper on some medical subject to be presented by you. L. ASHTON, M.D.

Chairman Section on General Medicine, Dallas, Texas.

Chicago Medical Society.—The annual meeting of the Chicago Medical Society was held April 5. The election of officers for the ensuing year resulted as follows: President, Dr. Ferdinand Henrotin; first vice-president, Dr. A. D. Bevan; second vice-president, Dr. J. C. Hoag; secretary, Dr. A. R. Edwards; treasurer, Dr. A. R. Reynolds. There was an informal discussion on the outcome of the election and the appointment of a new commissioner of health. It was reported that each of the mayoralty candidates had promised in case of his election to appoint a physician, and no action was taken on the matter. Speeches advocating the passage of the amendment to the medical practice act now before the Legislature were made.

NECROLOGY.

JOHN O. BRONSON, M.D., died March 28 at his home in Rhinebeck, N. Y. He was born in Glastonbury, Conn., Nov. 9, 1827. In 1857 he became professor of anatomy in the New York Medical College (now extinct) from which he was graduated in 1855. During the war he served as a medical director in the departments of the Pacific and of the South, having been commissioned a Surgeon of U. S. Volunteers. He returned to New York, retiring in 1880. He was interested in Florida railroad building and had a country seat in that State. He leaves a widow.

SAMUEL G. ARMOUR, M.D., it has been learned in Brooklyn, died of jungle fever last January in Central Africa, while in the service of the Belgian government. He was graduated at the Long Island College Hospital in 1892, and served as interne for two years. He sailed from New York City for Brussels in February of last year. He landed at Boma, a town at the mouth of Congo River and proceeded overland to Stanley Pool. A part of the mission of his party was to deal with Arab slave hunters. From a letter received about a month before his relatives learned that he was slightly ill. In this he said the command to which he was attached was about to be reinforced by Europeans, after which it would push further into the interior. Dr. Armour had gratified his taste for travel to an unusual extent, having made several trips to Europe, and at the time of the Brazilian revolution having also secured the appointment of surgeon on the dynamite steamer *Nictheroy*, formerly the New Orleans steamer *El Cid*, and refitted in New York City.

GEORGE B. TWITCHELL, M.D., died at his home in Keene, N. H., March 30, aged 77 years. He was a Virginian by birth, an alumnus of the University of Pennsylvania Medical College, class of 1843, and surgeon of the 13th New Hampshire Infantry, discharged March 21, 1863.

JONATHAN STRONG CURTIS, M.D., Dartmouth, 1844, died in Hartford, Conn., March 31, in his 76th year.

HENRY WALDBURG COLEMAN M.D., College of Physicians and Surgeons, N. Y., died in Trenton, N. J., March 30, 1897.

MISCELLANY.

The Columbus Medical Journal has removed from 150 E. Broad St. to its new quarters, 68 Buttles Ave., Columbus, Ohio.

A Long Honorable Life.—Dr. de Bossy of Havre, who has just died at the age of 103 years, was the *doyen* of French doctors. Up to the end of January he gave consultations and attended patients regularly.

Good Evidence that Strychnin is a Poison.—The supreme court of South Carolina holds, in State v. Green, Jan. 6, 1897, that a physician may be permitted to testify that in his opinion, based upon his reading of standard medical works, that strychnin is a deadly poison.

A Good Prescription.—The *New England Medical Monthly* and *The Prescription* have been consolidated and will hereafter be published as one journal. This consolidation is a wise one, and we doubt not *The Prescription* will be even more agreeable to its progressive readers than in the past and *taken* with avidity. Dr. Wile will continue as editor-in-chief of the joint publication.

College Proceedings.—At the commencement exercises of the medical department of the University of Nashville, held March 23, there were fifty graduates.——The commencement exercises of the Chattanooga Medical College were held March 23; thirty-four students were graduated.—— The annual commencement of the Southern Medical College was held March 30.——At the annual commencement of the medical department of the Western University of Pennsylvania, at Pittsburg, there were 105 graduates.——The eighteenth annual commencement of the Central College of Physicians and Surgeons, Indianapolis, was held March 24. There were thirty-four graduates.

Verdict Conclusive.—In Hedenberg v. Graham, which was an action brought to recover for professional services as a physician and surgeon, where the defense was neglect of professional duty in the case, the appellate court of Illinois holds, March 8, 1897, that, whether or not, under the evidence, the plaintiff was guilty of neglect of duty, was a question of fact and not one of law, and it being determined in his favor, then the further question of what was the reasonable value of the services rendered by him, became, likewise, one of fact and not of law, and upon both questions it must consider the verdict as conclusive upon it.

Labor for Convicts.—The State Prison Department of New York State "reports the following schedule as being in complete operation. At Auburn, for the manufacture of baskets, cloth, bed-ticking, hollow ware and furniture; at the women's prison, women's underwear and women's clothing; at Clinton, wrappers, tinware, baskets, knit underwear, hosiery, wheelbarrows, shirts, collars and cuffs; at Sing Sing, printing, men's clothing, boots and shoes and office desks; at Auburn a school for instruction in wood carving has also been established." The trades unions, naturally staunch adversaries of competition, procured the introduction of the prohibition clause in the new constitution chiefly on politico-economic theories of what was in reality class legislation. The prisoners themselves now joyfully accept the new conditions as a needed relief from the ennui of solitary monotony and at the least of an imbecility that is inevitable. Dr. Austin Flint, in his address before the New York State Medical Association nearly two years ago, ably advocated the policy now in vogue as benefiting both the State and its criminal wards. "Idleness," said a far-back ancient, "is the devil's workshop."

Bad Indictments.—In the two cases of State v. Julius A. Pirlot and Alexander W. Walter, respectively, the indictments charged merely that the defendants "did unlawfully practice medicine and surgery, for reward and compensation, against the form of the statute," etc., without setting forth in what the unlawfulness consisted. These indictments, the supreme court of Rhode Island holds bad, and orders quashed, Jan. 22, 1897. In explanation, it says that the rules of criminal pleading require that the offense shall be charged specifically; first, in order that the accused may know precisely what he is to defend, and secondly, that the record of his acquittal or conviction may be a bar to a subsequent prosecution for the same offence.

An Eclectic Pest in England.—The quack, John Ferdinand, was tried before a London court December 17, on the charge of having committed perjury at the coroner's inquest on the death of a woman named Sophia Holliday. The evidence of the prosecution showed that Ferdinand had been a most dangerous pest to society for a long period. Twenty-six years ago he had been convicted of stealing bread, at which time he seems

to have been a plumber and glazier in Somersetshire. He had since carried on business as a quack in Stockton-on-Tees, Manchester, Birmingham, Cheltenham and Swindon, and had advertised himself largely as the possessor of a certain method of curing cancer. He claimed to be a Doctor of Medicine of the United States of America and to have a diploma from an eclectic medical school in Pennsylvania. Doubt was thrown upon the truth of these claims, though from all that we can see they might have been admitted without bettering his case. There is, we need hardly say, no such degree as "M. D., U. S. A.," although certain of these eclectic institutions have long been known to be shops for the sale of licenses to practice gross quackery. Ferdinand was sentenced to twelve months hard labor for perjury, in Mr. Braxton Hick's court, and no one can consider the sentence a heavy one. This fellow has lived for years on the credulity of the sick, has buoyed up miserable men and women with false hopes, has cozened them out of the money that might have been spent in alleviating their misery, and, lastly, in many a case by his pretensions of ability to cure, has prevented them from seeking medical assistance until too late. What is this last crime but manslaughter?—London *Lancet*, December 26.

Porro's Operation Under Difficulties.—Six village midwives struggled to relieve a primipara of a child in pelvic presentation with such force that the body of the child was torn from its head, which remained in the uterus with the placenta. The woman was brought to the hospital the seventh day, with severe hemorrhage and an advanced septic endometritis. Lesin performed Porro's operation with success.—*St. Petersb. Med. Woch.*, No. 1, 1897.

Doctors Not Scapegoats for Murderers.—Similar, in effect, to the Iowa decision referred to on page 331 of this volume of the JOURNAL, comes one from the supreme court of Alabama, handed down Jan. 27, 1897, in the case of Daughdrill v. State. It says that a defendant can not escape the penalties for an act which in point of fact produces death because death might possibly have been averted by some possible mode of treatment. The true doctrine, it holds, is that where the wound is in itself dangerous to life, mere erroneous treatment of it or of the wounded man suffering from it will afford the defendant no protection against a charge of unlawful homicide. Nor is it necessary to a conviction that the wound should have been "necessarily fatal."

The Pancreas and Other So-called Sweetbreads.—Dr. Parry in *British Medical Journal*, hints at a possible danger to health in the use of thyroid and thymus glands, that may be sold by butchers under the name of sweetbreads. He has made some investigation of the subject and finds that there is a confusion of terms, intentional or otherwise, in the minds of the sellers of meat. He says: In talking to a butcher I was surprised to hear him say that there were three sweetbreads in an animal. I asked him where they were situated and he told me, at the root of the neck, in the cavity of the chest, and in the belly of the animal. I questioned him more closely and discovered that his three sweetbreads corresponded respectively to 1, the thyroid gland; 2, the thymus gland; and 3, the pancreas. To make quite sure that no mistake had been made I watched him, a day or two after, kill and cut up a bullock. The thyroid gland in this animal is situated low down at the root of the neck over the trachea. The thymus (which he told me was bigger in the calf than in the bullock) is placed in a somewhat similar position to where it is in man; while the pancreas (the most important organ) he regarded as the least significant, and told me it was "given in with the liver." He told me, moreover, that if he were asked for calf's sweetbread he would always give (what we call) the thyroid and thymus glands. I have been informed that all butchers do the same thing, though I can not vouch for the accuracy of this statement. At any rate it seems to me to be right for every physician to be on his guard when ordering "sweetbreads" for his patients that the pancreas be provided and not these other glands. An undercooked calf's thyroid gland being repeatedly given in the place of a real "sweetbread" might, as we know, produce untold mischief in a patient, as well as perplex the mind of the prescribing practitioner in a peculiar and undeserved manner.

Not Evidence of Illness that will Excuse Witness.—An attorney made affidavit that he had had a personal interview with a certain witness, in the presence of her physician, and was informed by her and her physician that the condition of her health was such that it would be impossible for her to attend the trial, and be examined as a witness in open court, without exposing herself to great danger, she being a sufferer from a form of nervous prostration which the excitement of an examination in open court would be certain to aggravate. Upon this affidavit, an order was granted for the examination of the witness before trial. Feb. 12, 1897, the appellate division of the supreme court of New York reversed the order, Montgomery v. Knickerbacker, holding that the evidence of the illness of the witness which would prevent her from appearing at the trial was altogether too slight to justify the order.

Inquiry Necessary.—Before a member of a board of governors of an association formed under the provisions of the New Jersey act entitled "An act to provide for the incorporation of associations for the erection and maintenance of hospitals, infirmaries, orphanages, asylums and other charitable institutions," approved March 9, 1877 (Supp. Revision, p. 372), can be removed from his office, the supreme court of New Jersey holds, in Welch v. Passaic Hospital Association, Jan. 30, 1897, that there must be an inquiry, and a determination of the neglect of duties imposed upon such member by the constitution and by-laws of such association; and this inquiry and determination can only be made upon notice to him, and an opportunity for him to be heard in his defense. An irregular removal of such member, the court further holds, will warrant the use of the writ of mandamus to restore him to his corporate rights in said board. And the mere fact that a member of such a board, who is a physician, is a member of the medical staff of another hospital, the court apparently does not believe shows a neglect of duty as such board member, or ground for his removal, where neither statute, constitution, nor by-laws renders it inconsistent with his serving in the latter capacity.

Differential Diagnosis of the Cocain Habit.—A medical writer in the European edition of the *New York Herald* has a note on a new diagnostic symptom. The symptomatology of the cocain habit is very similar in its main features to alcoholism and other intoxications; it would even be difficult in the absence of other data to make the differential diagnosis if we did not know the truly characteristic signs, which M. Magnan of Paris, has ascertained. Thus, independently of the marked symptoms of exaltation of the cerebral functions, soon followed by profound depression of the whole system, as is also the case in alcoholism, there occurs a form of hallucination, of general sensation, consisting in the feeling of the existence of foreign bodies beneath the skin. These bodies generally seem to be round in form, similar to grains of sand, and the patient complains of feeling microbes, worms or insects between the skin and flesh. These disagreeable, multiple and movable sense disorders have also been observed by M. Rybakoff of Moscow, who considers them truly characteristic of the chronic use of cocain. On several occasions he diagnosed the cocain habit, which he otherwise would not have suspected, merely by having the patient speak of a sensation of worms beneath the skin, and in each case the hallucination disappeared simply by stopping the cocain habit. Complete and definite suppression of the

alkaloid is naturally the first indication in the treatment of the cocain habit. The disorders that follow the adoption of this radical means, such as loss of appetite, palpitation, insomnia and moral and physical depression, are sufficient to put the patient's will power to a severe test; but they improve little by little, particularly if the physical weakness is treated by tonics, iron, cinchona bark and arsenic. However indispensable it may be to give up the use of cocain, there are nevertheless cases in which half measures are necessary; in other words, in which the dose must be first lessened. This must be done with nervous or weak patients, and with those who have pulmonary or cardiac lesions, with whom absolute suppression may give rise to serious symptoms, such as syncope, collapse or complete loss of control amounting almost to mental disorder.

Washington's Attack of Smallpox.—Authentic history records several marvelous instances in which the life of Washington was saved under circumstances seemingly little less than miraculous. One of these wonderful escapes from impending peril occurred during the period of Washington's sole recorded absence from the American continent, when he accompanied his brother Lawrence (then fatally ill with consumption) to the Barbadoes. They sailed in September of 1751, George being then in the twentieth year of his age. Before the brothers had been a fortnight in the island, the younger, the future hero of the Revolution, was attacked with smallpox in its "natural" and virulent form. This disease was not then the fangless monster with which we are familiar, but was terrific in its assaults and almost invariably fatal; yet Washington recovered in something less than three weeks and retained through his life but slight marks of the malady. One of General Washington's biographers well says in reference to this incident in the life of the first president, that, "It may be doubted whether in any of his battles he was in equal danger. If the disease entered an army it was a foe more to be dreaded than embattled hosts. . . . But it belongs to that class of diseases of which, by a mysterious law of our nature, our frames are, generally speaking, susceptible but once. . . . Thus it came to pass that in the morning of his days Washington became (humanly speaking) safe from all future danger from this formidable disease." The reader of our history will remember that the smallpox appeared among the British troops in Boston in the fall of 1775; that it ravaged our army in Canada in the following spring; that it prevailed the same year at Ticonderoga, and in 1777 at Morristown. Regarding this last occasion of its appearance, Washington said, in a letter to Governor Henry, of Virginia, where vaccination was not permitted: "You will pardon my observations on smallpox, because I know it is more destructive to the army than the enemies' sword, and because I shudder whenever I reflect upon the difficulties upon keeping it out." This was the tremendous peril from which Washington was comparatively safe after his twentieth year. "If," says a very eminent writer, "to refer this to an overruling Providence be a superstition, I desire to be accounted superstitious."—*Independent*, February 18.

No Grounds for Damage in Alleged Mental Sufferings.—Before supreme court, appellate division, in New York, the theory held in some States that damages may be awarded for injuries to the emotional nature was negatived in the suit of Curtin against a telegraph company, by reason of delay in the delivery of a certain telegram. Justice Barrett, in giving the decision, considered one question only, namely, whether the plaintiff could recover damages for mental distress, causing, as was claimed, physical suffering. This question, the court says, was the crucial one and it must be disposed of adversely to plaintiff, both upon principle and authority. The recent case of Mitchell against the Rochester Railway Company was cited, where the court of appeals held that, although a miscarriage and consequent illness resulted from fright occasioned by the negligent management of defendant's car and horses, yet the plaintiff could not recover, for the reason that there was no immediate personal injury. "The law looks upon the strict physical injury alone," Justice Barrett says, "and the proximate consequences of the negligent act; not upon the secondary ailment resulting from the primary mental suffering. An injury to the feelings, independently, alone, is something too vague to enter into the domain of pecuniary damages; too illusive to be left, in assessing compensation therefor, to the discretion of a jury. The extent and intensity of such injuries depend largely upon individual temperament and physical, mental and nervous conditions. These conditions are shadowy, unequal and uncertain in the extreme. When they exist in connection with physical injury, they can be examined and tested. Existing alone and independently, they are easily simulated and the simulation is hard to detect. There is, in fact, no genuine congruity between pecuniary loss and isolated mental pain. And if there were, there is no certain means whereby such mental pain can be fairly and accurately compensated."

A Method of Untying the Knots of Silk Ligatures.—At a recent meeting of the New York Obstetrical Society, Grad (*American Gynecological and Obstetrical Journal*, February, 1897, p. 105) described an ingenious method of untying the knots of silk ligatures, especially after hysterectomy. For this purpose a ligature proper is required with one end knotted for ready identification, together with a number of so-called traction-strings. The latter are made of pieces of braided silk, preferably No. 13, about twenty inches long, the two ends of which are tied together. These are designated 1, 2, 3, etc., and are distinguished by a corresponding number of knots. Thus when the operator is ready to fasten his ligature, he slips over the knotted end, let us say, traction-string No. 3, and ties over this with the ligature a single or double knot as he prefers. Then traction-string No. 2 is slipped over the knotted end of the ligature and a second knot is tied. For additional security a third knot may be tied in the ligature, traction-string No. 1 being first slipped over the knotted end of the ligature. The knotted end of the ligature is now cut short and the three traction-strings, with the remaining long end of the ligature, are tied together with a piece of fine silk. At the completion of the operation the separate bundles of traction-strings and ligatures are brought down into the vagina and they serve to facilitate drainage. The same process is repeated in turn with each ligature. If the traction-strings have been properly applied, their subsequent removal and that of the ligature can be easily effected. The patient is placed in the lithotomy position, the bundles of traction-strings and ligatures are pulled out of the vagina, each bundle is separated from its fellows and the thread binding the selected bundle is cut, thus releasing the traction-strings and the long end of the ligature. Traction-string No. 1 is now picked up, and slow but steady traction is made on one-half of it until it is felt to move out of its position. After making this forward and backward motion two or three times the traction-string suddenly comes away and the first knot (the last one tied) is untied. The same maneuvers are repeated with the other traction-strings. All the knots are now untied and the ligature alone remains. A slight pull will suffice for the removal of this. Each bundle of ligatures and traction-strings is treated in the same way until all are removed. An aseptic douche follows, and the patient is returned to her original position in bed without having suffered material discomfort.

A Great Scottish Scholar.—The *Lancet* points out with regret how a great British scholar has had his memory slighted, remarking that since Dr. Milligan has been in his grave a half-century, his countrymen are better able to take the measure of his scholarly attainments. He it was who re-discovered

Celsus, "the Roman Hippocrates," but we hunt in vain for his name in the important Dictionary of National Biography; and the same may be said of certain other encyclopedic works of reference that have been consulted. It should not be overlooked, however, that di Renzi, the medical historian of Italy, has given to Dr. Milligan, in his *Bibliographia Celsiana*, an adequate and admiring credit for his rehabilitation of Celsus. We should remember also that Daremberg, the ablest of French historians of medicine, to whom the text and interpretation of Celsus owe so much, makes honorable mention of Milligan's labors; nor do we forget that, in such standard works as Riddle and White's Latin Lexicon, Milligan's edition is the only one referred to. It is, indeed, the single serious attempt yet made by British scholarship to edit the Roman Hippocrates with due regard for purity of text and sufficiency of explanatory comment, and its merits are not passed over in the great *Biographisches Lexikon der Hervorragenden Aerzte aller Zeiten und Voelker*, which was published recently at Vienna and Leipsig. To that treasure house we go for further information as to Edward Milligan, and we learn that he was born in 1784 in Dumfriesshire, that he was destined apparently to the humble lot of a bootmaker, but that he educated himself *zu einem ausgezeichneten Gelehrten* (to be a distinguished scholar) at Edinburgh, where, turning to medicine, he graduated as doctor in 1815, and besides his three editions of Celsus (1826, 1831 and 1839), edited with Latin text and English translation Cullen's "Nosologia," wrote on "The Doses of the Ancient Physicians," and on "The Theory of the Frontal Sinus," and was for years conjoint editor of the *Edinburgh Journal of Medical Science*. He died in London about half a century ago, leaving a record as medical teacher and scholar eminently worthy of notice in his country's "Dictionary of National Biography," and surely deserving of something better at the hands of his compatriots than to be relegated to the pages of a German encyclopedia for a brief acknowledgment of his meritorious life-work.

Liquid Air.—The *Monthly Weather Review* for January, 1897, invites attention to a lecture on "liquid air" delivered January 6, by Dr. Karl Linde of Munich, before the Berlin Society of Engineers. From the report of this lecture we summarize as follows: At certain pressures every gas has certain critical temperatures at which it begins to become fluid. For atmospheric air under a pressure of 39 atmospheres the critical temperature is —140 degrees C; at ordinary pressure or a pressure of one atmosphere —191 degrees C. The question is how to produce this low temperature. One way is first to prepare liquid carbonic acid and by the cold of the evaporation of this substance (—50 degrees C.) to prepare acetylene or some other liquid gas whose boiling point is considerably lower than that of the liquid carbonic acid. This method has now been abandoned as too laborious and expensive. A simpler method is by the compression of the gas and its expansion after cooling. When a gas is compressed it becomes warm; when released so that it occupies its original space there occurs a cooling back to its original temperature. If, however, the heated gas be cooled off while it is still compressed and then allowed to expand there will result a cooling to some point below the original temperature, and this temperature will, in fact, be lower in proportion to the cooling of the compressed gas. An ingenious apparatus has been contrived by which the cooling of the condensed gas is effected by means of its own cooling by expansion. A small metal tube is placed within a larger one, and the compressed gas is forced into the small tube. A throttle valve on the end of the small tube allows a diminution of pressure and at the same time the conduction of a part of the expanded and cooled gas backward through the larger tube. The direction of the flow of the gas through the large tube is therefore opposite to that in the small tube, so that the cooling takes place in the most perfect manner. By the repetition of this process the second diminution of pressure brings the gas down to the ordinary atmospheric pressure and by a second application of the cooling flow in the opposite direction extraordinary low temperatures are attained and the air itself may be liquefied. Since the liquid air thus obtained will not remain liquid under ordinary conditions but will very rapidly evaporate, it is collected and preserved in glass flasks having double walls. The space between the two walls is exhausted of air but contains a few drops of quicksilver. The mercury evaporates into the vacuous space and forms a mirror by condensation on the cold inner glass wall. This mirror hinders the radiation of heat while the vacuum hinders the conduction of heat. In this way scarcely a thirtieth part of the heat enters the liquid that would under ordinary circumstances penetrate into the interior of the flask. Air is a mixture of nitrogen and oxygen and as nitrogen requires a temperature for its liquefaction lower than that at which oxygen is liquefied it is apparent that at first more oxygen than nitrogen passes into the liquid condition. The liquid exhibited to the audience consisted of about one-third nitrogen and two-thirds oxygen. It demonstrated its richness in oxygen visibly by its delicate blue color, for oxygen is blue and nitrogen colorless. The extreme coldness of the liquid was demonstrated by the formation of fog in the neighboring air, as also by the behavior of the liquid when poured into an enameled dish having the temperature of the room. The liquid circled around until the dish was cooled precisely as in the Leidenfrost experiment when water is dropped into a heated platinum dish. Such extraordinary cold produces burns on human skin similar to those produced by great heat. The lecturer closed by referring to the possible industrial application of liquid air or oxygen. In one hour and with the expenditure of one horse-power five cubic meters of air can be liquefied. When we reflect that for industrial applications pure oxygen is not necessary, but that a mixture of oxygen and nitrogen will suffice, we see at once that here there is really much promise for the future.

The Essentials of Hypnosis.—Dr. Liebault, of Nancy, France, who has been conducting hypnotic experiments for two or more years, avers that he has found males far more susceptible to hypnosis than females, in the proportion of three males to two females. Opinions widely differ as to the reason for this. It is generally thought, however, that it is, strangely enough, because the mind of woman lacks the strength of that of man. It is often true that a person of exceedingly nervous temperament, lacking in a measure ability to concentrate thought, is a very poor subject for the hypnotist. This is shown by the fact that it is rarely possible to actually hypnotize a person whose mind is unbalanced. It is possible to hypnotize 95 per cent. of mankind. The remaining 5 per cent. are impervious to the direction of the hypnotist, let him be of as strong mind as he may. All these persons who are susceptible to the influence of hypnotism are not affected to the same degree by any means. The influence of the hypnotist on woman is very different than upon the sterner sex. It is more difficult for a woman to fix her attention upon a given object than for a man to do so. Just why this is, is not known. Dr. Liebault says that "persons who are easily distracted, who from nature or training have not the power of fixing the attention or concentrating thought, and persons in agitation, those who are heavy and dull, idiots whose brains lack the power of understanding what is required of them—these are the least capable of hypnosis. It simply amounts to this. Sense and activity are subtracted from the subject's mind, and in their place is sleep. That is all there is of it. Once the subject accepts the suggestion of the operator it naturally follows that he will accept suggestions other than those which are first given, but it is absolutely impossible to make a person who is hypnotized perform a crime. No person can be hypnotized against his will. I am fully aware that in saying this, particularly the first assertion made, I am contradicting generally accepted beliefs. Yet I do not hesitate to say what I have said is not only true, but that the statement is the result of thorough, extensive and complete investigation and experiment. It is no deduction from theory, but fact, pure fact. The reason why a man can not be induced to commit crime while under the influence of hypnosis is simply because the power of the hypnotist does not extend that far. A person may be made to become thoroughly

insensible to pain, and his mind may be turned in various directions, up to a certain limit, but, that limit reached, then a halt must be called, or rather, the hypnotist finds himself incapable of forcing further action on the part of his subject. Truly he may make the subject think of crime by offering such a suggestion, but he can not force him to commit action of that sort. It is very plain to the hypnotist who has given the subject thought and who has tested his ideas by experiment that hypnosis, as applied to women to relieve them of frightful pain, is of inestimable value. For instance, in the matter of therapeutics it is exceedingly useful. You see for centuries it has been admitted that there was no medicine that equaled sleep. Therefore, the doctor who can place his patient at a critical time under the influence of hypnosis is really giving her an opportunity to find in that blessed oblivion the relief that can be gained in no other manner, except by the use of anodynes. I am sure that there is no woman who would object to being placed under the influence of hypnosis if she understood how beneficial it would be to her under such circumstances. I do not hesitate to make the assertion that hypnotism is of far greater benefit than the ordinary sleep. Neither sleep nor medicine can approach in power the effect of thought reacting by suggestion upon the organism."

New York.

A GROWING NEED.—The New York Infirmary for Women and Children, beginning as a dispensary in 1854, with a hospital added in 1857 and chartered as a Woman's Medical College in 1864, is receiving not a little encouragement in the way of funds for a suitable building. The last annual report shows a total of 752 patients for hospital and 1,319 for home treatment. A contribution of $10,000 from a lady who does not wish to exploit her name, has brought the fund up to $69,000. This institution is both ethical and discriminating, inasmuch as all persons applying for free attendance at home are asked if another doctor has been called in; if so, a letter is required from the doctor stating that the family can no longer afford to pay for medical care. But then, charity should not be too punctilious, lest the tramp falter between the fragments of a plate-glass window and the comforts of the workhouse.

SALE OF THE COLORED HOME AND HOSPITAL PROPERTY.—The Colored Home and Hospital Society, organized in 1839, has prepared to move its site to somewhere in the upper section of the island by the sale of its property to the "City and Suburban Homes Company" for $210,000, which is a more recent philanthropy. The latter was incorporated only last year, and offers to capital a safe 5 per cent. investment, and at the same time supplies to wage-earners improved wholesome homes at current rates. The first undertaking of the company was the purchase of a tract in 68th and 69th Streets, between Amsterdam and West End Avenues, from the Clark estate, upon which it is now constructing a group of model tenements.

ANOTHER NEW HOSPITAL.—The Nassau Hospital Association are preparing to erect a new hospital on a prominent site at the extreme end of the Garden City Company's property, which will cover an acre of ground. The aim is to complete the building during the summer. The location is more exactly described as being west of the Hempstead and Mineola Railway line and on the outskirts of Mineola township.

A LITTLE BETTER.—Governor Black of New York signed on March 30 a bill providing a fee of twenty-five cents from the municipality in which they reside for physicians and midwives reporting births. Clergymen or judges are to receive the same amount for reporting marriages. The reform was undoubtedly suggested by a Massachusetts law, to forestall the objection to the right of any State to demand a service without an equivalent remuneration.

Hospitals.

A NEW BUILDING to replace the present Hospital for Women and Children is to be erected at Central Avenue and Tenth Street, Newark, N. J. It is to be five stories high with two open wards, eighteen private rooms, operating theaters, and as far as practicable the usual modern equipments. The structure is to be of white brick and to be in part ready for occupancy in September.

A FIRE AT A STATE LUNATIC ASYLUM.—The northeast section of the Manhattan State Hospital for the Insane, on Ward's Island, New York city, was burned out early in the evening of March 30. The damage done was to the extent of $2,000. The 170 male lunatics who were confined in the section escaped without injury and stood with 1,100 other inmates on the broad lawn for over two hours enjoying the work of the island fire brigade and of the city firemen that went to their aid. Efficient use was made of the drill which is gone through with twice daily. The Manhattan Hospital became a State institution on March 1, 1896. Before that it had been called the New York City Hospital for the Insane, part of which was burned down in 1883. The city purchased Ward's Island from the State for $2,000,000 in 1894 and early in February, 1896, gave the State the free use of the grounds and buildings, without consideration, but with the provision that the State should vacate the premises on fifteen years' notice from the city, the latter to pay for the buildings. Accounts agree in the statement that the mood of the lunatics was that of a subdued jollity, coupled with the dominant delusion that the performance, continuous and spectacular in character, was for their amusement. The estimated loss by this fire is between $75,000 and $100,000, but by about August 1 new fire proof quarters are to be provided. At the present writing arrangements have been made for fifty patients to be sent to the King's Park Department of the Long Island Hospital, a like number to the Central Islip Department of the Manhattan State Hospital, and fifty more to Blackwell's Island.

THE PUBLIC SERVICE.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from March 27 to April 2, 1897.

Capt. Julian M. Cabell, Asst. Surgeon, having been found by an Army retiring board incapacitated for active service on account of disability incident to the Service, is by direction of the President retired from active service this date, March 29, 1897. He will proceed to his home.

Major Louis M. Maus, Surgeon, will be relieved from duty at Ft. Sam Houston, Texas, upon the arrival at that post of Major Augustus A. De Loffre, Surgeon, and ordered to repair to Washington, D. C., and report in person to the Surgeon-General of the Army for temporary duty.

Change of Address.

Burchard, W. M., from Lemon City, Fla., to Uncasville, Conn.; Bunts, F. E., from 380 Pearl Street, to 275 Prospect Street, "The Osborne" Cleveland, Ohio; Bradley, C. M., from Decatur to Sublette, Ill.; Bacon, John, from Philadelphia, to Andalusia, Pa.

Crile, Geo. W., from 380 Pearl Street, to 275 Prospect Street, "The Osborne," Cleveland, Ohio.

Ferguson, H. M., from Chicago, to Washington and Liberty Streets, Morris, Ill.; Frisby, E. G., from 803 to 734 Sutler Street, San Francisco, Cal.

Hector, W. S., from 3656 to 3678 State Street, Chicago, Ill.; Hanna, E. A., from 1369 Jackson Blvd., to 735 W. 69th Street, Chicago, Ill.; Henley, A., from Melbourne, Fla., to Fairmount, Ind.

Kerr, Norman, from 111 to 107 Chicago Avenue, Chicago, Ill.

Oyen, A. B., from 807 to 801 N. Rockwell Street, Chicago, Ill.

Smith, J. W., from 2301 to 2313 Washington Avenue, St. Louis, Mo.; Steele, D. C., from Wahpeton, N. Dakota, to Colcato, Minn.

LETTERS RECEIVED.

Anderson, P. L., Chicago, Ill.; Allan, B. A., Louisville, Ky.; Alma Sanitarium Co., Alma, Mich.; ayres, S. C., Cincinnati, Ohio.

Backen, H. M., Minneapolis, Minn.; Boehringer, C. F. & Soehne, New York, N. Y.; Brooksher, W. R., Ft. Smith, Ark.; Bean, W. B., Letons, Ark.

Cathcart, Cleland & Co., Indianapolis, Ind.; Chadwick The Company, Chadwicks, N. Y.; Cole, G. E., Girard, Kan.; Colorado Sanitarium, Boulder, Colo.

Elliott, A. R., New York, N. Y.; Erwin, C. R., Chicago, Ill.

Falconer, R. C., Lexington, Ky.; Ferguson & Goodnow, (3) Chicago, Ill.; Fessenden Mf'g Co., The (2) Pittsburg, Pa.

Green, George W., Battle Creek, Mich.; Guthrie, F. A., Aledo, Ill.

Harvey, G. F., The, Saratoga Springs, N. Y.; Hudson, S. E.; Austin, Texas; Haldenstein, I., New York, N. Y.; Hitz, Henry B., Milwaukee, Wis.; Horton & Wilbur, North Wilkesboro, N. C.

Joseph, S., St. Louis, Mo.

Knight, T. Howard, Philadelphia, Pa.

Lord & Thomas, Chicago, Ill.

Murray, J. A., Clearfield, Pa.; Manning, W. B., West Acton, Mass.; McDavitt, Thos., St. Paul, Minn.; Marshall, John S., Elyria, Ohio.

Norbury, Frank P., St. Louis, Mo.; New York Medical Book Co., New York, N. Y.

Ott, Isaac, Philadelphia, Pa.

Pacific Electric Co., La Crosse, Wis.; Pasteur Vaccine Co., Chicago, Ill.; Patterson Home, Grand Rapids, Mich.; Pope, Curran, Louisville, Ky.; Parke, Davis & Co., Detroit, Mich.; Polk, J. T., Greenwood, Ind.

Reed & Carnrick, New York, N. Y.

Sternberg, Geo. M., Washington, D. C.; Stearns, F. & Co., Detroit, Mich.; Stewart, P. H., Paducah, Ky.

The Procton & Collier Co., Cincinnati, Ohio; Tobey, H. A., Toledo, Ohio.

Wingate, U. O. B., Milwaukee, Wis.; White Rock Mineral Spring Co., Waukesha, Wis.; Whitefield, S. T., Uniontown, Ala.; Williams, H. S., Durango, Colo.; Ward, W. A., Conneaut, Ohio; Whelpley, H. M., St. Louis, Mo.